



**Biosphere Evolution, Transitions and Resilience:
A UK-China Collaborative Research Programme**

Announcement of Opportunity

Closing date for Proposals: 16:00 BST (15:00 UTC) 27 July 2016

1. Summary

The UK's Natural Environment Research Council (NERC) and the National Natural Science Foundation of China (NSFC) are inviting proposals to the Biosphere Evolution, Transitions and Resilience (BETR) strategic research programme.

The aim of the BETR programme is to advance understanding of the evolution of the biosphere by integrating excellent palaeo-science (e.g. palaeontology, geochemistry, geochronology and phylogenomics) and cutting edge modelling. The programme will address three key questions:

1. When and how were the stability/resilience regimes of the biosphere transformed?
2. Do environmental or biotic drivers govern evolutionary change?
3. How have the coupled biogeochemical cycles changed through time?

Proposals are sought for collaborative research projects involving UK and Chinese researchers. NERC have a budget of £3,600,000 for grants for this call and NSFC have ¥9,000,000 matching funds. NERC funds will be used to support UK researchers, while NSFC funds will fund Chinese researchers. The funders anticipate awarding three grants of up to £1.5m (at 100% FEC - £ 1.2m at 80%) for the UK component and ¥3,000,000 for the Chinese component.

Proposals will be peer reviewed by independent experts and go to a Moderating Panel; applicants will have the opportunity to respond to the reviewers' comments prior to the panel meeting.

The closing date for full proposals is 16:00 BST (15:00 UTC) on 27 July 2016.

3. Programme Background

Biosphere Evolution, Transitions and Resilience (BETR) is a strategic research programme jointly supported by the UK's NERC and China's NSFC.

NERC is the UK's leading public funder of environmental science with the vision to place environmental science at the heart of responsible management of our planet. The NERC strategy "The Business of the Environment"¹ identifies three strategic priority areas for research to meet society's needs: 1) benefitting from natural resources; 2) resilience to environmental hazards; and 3) managing environmental changes. This programme addresses the third area.

The National Natural Science Foundation of China (NSFC) is widely respected as the most transparent research funder in China, it implements a rigorous and objective peer review system to support basic and frontier research, foster talented researchers and develop international cooperation. Evolution of earth and planetary environments and life processes are also one of the priority areas for NSFC².

3. Scientific Objectives

Studying the fossil record can provide insights into how the biosphere responds to change, including if there are traits whose loss can precipitate ecosystem collapse and whether there is a relationship between biodiversity and biosphere resilience. A better understanding of how ecosystems have responded to change in the past can therefore enable better predictions of how present day ecosystems will respond to future change.

To determine the rates and causes of change in the fossil record a diverse range of geological, biotic and geochemical data needs to be integrated; and this integration is dependent on having tightly constrained ages for the datasets. The aim of the BETR programme is to support the interdisciplinary research needed to determine these rates and causes of change. This aim will be achieved by integrating geochemical, geochronological and palaeontological data into a common geospatial framework which are then combined with process-based models of evolutionary ecology coupled to biogeochemistry and climate.

Successful projects will be expected to address each of the following three questions:

1. *When and how were the stability/resilience regimes of the biosphere transformed?*
Advancing knowledge of the character, drivers and long-term implications of perturbations to the biosphere to understand the comparative stability and resilience of different ecosystems
2. *Do environmental or biotic drivers govern evolutionary change?*

¹<http://www.nerc.ac.uk/latest/publications/strategycorporate/strategy/>

² <http://www.nsf.gov.cn/publish/portal1/tab284/info24555.htm>

Understanding the relative contributions of different drivers, for example can the loss of particular traits precipitate ecosystem collapse, and is there a relationship between biodiversity and biosphere resilience.

3. *How have the coupled biogeochemical cycles changed through time?*

Determining the link between perturbations in biogeochemical cycles and environmental, climatic and evolutionary crises, including the strength and timescales of feedbacks and how they influence the scale of biotic change and the stabilisation of ecosystems after the event.

This programme will focus on exploring palaeontological sites in China, which has a diverse range of well-preserved fossil localities that cover all of main periods of biotic change in Earth's history.

Projects can focus on any geological period and work on one or more Chinese fossil locality, but must clearly set out how the chosen sites will contribute to the delivery of the BETR programme goal of advancing our understanding of the biosphere.

Funding will be conditional on NERC and NSFC receiving confirmation that both Chinese and UK researchers have permission to access and study the selected field site/s. It is recognised that it may not be possible to confirm access prior to the closing date for this call, where this is the case proposals should set out the process for securing permission to enable the reviewers to assess whether appropriate steps are being taken to minimise the risks of permission not being granted.

4. Application requirements

Each proposal should address the requirements set-out below. Applications that do not meet these requirements will not be funded.

Fit to scheme

Scientific objectives

The scientific objectives have been given in section 3. Applicants should clearly describe in their proposal how they will address the scientific objectives of the BETR programme.

Non-scientific objectives

There is one non-scientific objective that applicants are expected to address:

- BETR aims to support the development of genuine, meaningful collaborations between researchers in the UK and China and applications should demonstrate how they will achieve this aim.

Eligibility for funding

For UK partners, eligibility for this call is restricted to UK-based researchers normally eligible for funding from NERC. Further information on NERC eligibility can be found on the NERC website³. Individual researchers may be named on a maximum of two different proposals, but only on one as the lead Principal Investigator. Proposals with individuals listed on more than two will be rejected.

For the Chinese partners, eligibility rules follow the standard for NSFC but applicants who are not clear on these should contact NSFC to discuss.

Studentships

No associated studentships will be funded as part of this call.

5. Process and assessment

These are collaborative projects between the UK and China. **All applications must include UK and Chinese scientists.** Applicants from the UK must apply through Je-S with Chinese collaborators listed as Project Partners. Chinese applicants will apply through NSFC's system. Both applications will have a common Case for Support attached in each system. Successful grants will have their UK costs paid through Je-S and their Chinese costs paid through NSFC's system.

Applicants are required to submit an additional attachment as type "non-UK component" which summarises details of the Chinese applicants and their requested costs. There are further specifications on the UK-Chinese collaborations in this section.

The closing date for UK full proposals in JeS is 16:00 BST (15:00 UTC) on 27 July 2016.

Full proposals will be put through peer review and go to a Moderating Panel. The final stage will be for leading members of the successful teams to attend a kick-off workshop where they will identify integrative and coordination activities between the different grants and questions and develop a detailed implementation plan.

5.1 Application process for proposals

The **closing date for proposals is 16:00 BST (15:00 UTC) on 27 July 2016.** No proposals can be submitted after this time. Proposals will need to be submitted through the Joint Electronic Submission (Je-S) system (<https://je-s.rcuk.ac.uk>). The Je-S call name is **Biosphere Evolution, Transitions & Resilience** and scheme is **Directed International**.

The programme expects to award three grants of up to £1.5m (100% FEC, £1.2m at 80% FEC) from the UK and ¥3m from China.

³ <http://www.nerc.ac.uk/funding/application/eligibility/>

Grants will have to start by 11th January 2017 and will be a maximum of four years long. It is expected that all grants will start by this point. Any exceptions to this start date have to be agreed by NERC.

Applications must be completed in English.

From January 2015, NERC has updated its position on adherence to grant rules⁴. **This means that any applications which fail to adhere to the page lengths of documents, font size, the specified budgetary limits of grants, the specified start date, etc. will automatically be rejected and there will be no opportunity for amendment or appeal.**

5.2 Application guidance

Applications should follow the guidance in section F of the NERC Grants Handbook⁵ apart from the exceptions described in this Announcement of Opportunity. **Specification of attachments and documents length should be followed according to the table in section 6.**

For proposals that have more than one UK component, i.e. where a research proposal consists of more than one component proposal enabling funding to be awarded directly to different UK Research Organisations, the guidance provided under Section F - Joint Standard and Large Grant Proposals of the NERC Grants Handbook should also be followed.

5.3 UK-Chinese collaborations

UK applicants will be expected to submit their associated costs in Je-S and Chinese applicants will be expected to submit through NSFC's system with their associated costs with the same deadline as the UK Je-S call. Each project will have the same Case for Support document which will be attached in both Je-S and NSFC's system.

Given the dual nature of the process, UK applicants should ensure that Chinese partners adhere to NSFC rules for submission and eligibility⁶. **Proposals which do not follow NSFC rules or include Chinese applicants who are ineligible will also be rejected by NERC with no opportunity for appeal.** It is advisable to check with NSFC if there is any doubt.

UK applicants should include their Chinese collaborators as Project Partners in their Je-S application with their NSFC costs added as an in-kind partner contribution. The list of collaborators and their costs should also be summarised as an additional attachment (type: 'non-UK component') on your submission. Applicants must use the template in Annex A. **You must also include the Chinese collaborators as part of the Track Record section of your Case for Support and submit their CVs as for a UK PI/Co-I.**

⁴<http://www.nerc.ac.uk/latest/publications/strategycorporate/strategy/>

⁵<http://www.nerc.ac.uk/funding/application/howtoapply/forms/grantshandbook.pdf>

⁶<http://www.nsf.gov.cn/publish/portal0/tab38/info52392.htm> for specific regulations and restrictions.

The application to be sent to NSFC should use the scientific code **D0201**.

One of the conditions of funding is that UK and Chinese collaborators have access to the site they intend to work. As this may not be possible to obtain prior to the grant being awarded all applicants must submit a confirmation or a description on how this confirmation will be obtained of the access to their site. This document needs to be attached to the Je-S application as document type “Collaboration Details” The maximum page-length for this document is two sides of A4.

5.4 Finances

UK applicants should follow the financial conditions set out in Section E of the NERC Grants Handbook.

Chinese applicants should adhere to the NSFC rules on eligible costs and financial conditions.

5.5 Data management

NERC requires that strategic research programmes implement a data management scheme which covers practical arrangements during the programme and subsequent long-term availability of the data set. In line with the NERC data policy⁷ the UK data from the programme will be lodged with the appropriate NERC Designated Data Centre. NERC puts an obligation upon the UK PIs to ensure that data management is undertaken in a suitable way. At the Full Proposal stage, applicants are required to submit an outline Data Management Plan (ODMP) as a separate mandatory attachment, to identify the data sets likely to be available to NERC Data Centres for archiving and reuse at the end of the grant. There will be no charge to the project for a NERC Data Centre to accept and manage the agreed data sets at the end of the grant but any in-project data management activities should be costed and included within the proposals. If proposals do include any costs for the Data Centre then these will be removed from the proposal before award. For successful projects, a full Data Management Plan should be mutually agreed between the Data Centre and PI within three to six months of the start date of the grant.

The ODMP should also describe how the fossils and rock samples collected during the projects will be curated, and where applicable include the costs associated with these activities in the proposals,

6. Check list of documents required

Document/attachment type	Requirements
Proposal Form	Je-S proforma, To be completed for both the UK lead and UK component applications.

⁷<http://www.nerc.ac.uk/research/sites/data/policy/data-policy.pdf>

		All Chinese collaborators should be added as project partners with the total funding request added as the in-kind contribution. All Chinese collaborators should be named on the UK lead application.
Case for Support		<p>Comprising:</p> <ul style="list-style-type: none"> • a common Previous Track Record incorporating all the Research Organisations involved in the UK and China (up to 3 sides of A4); • a common Description of the Proposed Research (up to 10 sides of A4 including all necessary tables, references and figures); • and a Description of the Proposed Management Structure and plans, participant responsibilities and scheduling chart (up to 2 sides of A4). <p>The Case for Support should explain the overarching scientific question, issue or theme. This document is only required by the lead NERC application and also needs to be submitted to NSFC .</p>
Outline Management (ODMP)	Data Plan	Up to 1 side of A4. Required only by the NERC lead application
Justification of Resources		<p>Up to 4 sides of A4 for all the UK Research Organisations in the proposed grant, including justification for items of equipment between £10,000 and the OJEU threshold.</p> <p>It should include a full justification of all sea-time and facility costs (excluding HPC) included as estimates on proposals. Use of ARCHER should be included as an estimate in Million Allocation Units (MAUs). Only required the lead NERC application.</p>
CV		CVs are required for named research UK and Chinese research staff (including Researcher Co-Investigators), Visiting Researchers, all UK and Chinese Principal and Co-Investigators named in the proposal (up to 2 sides of A4 for each CV).
Pathways to Impact		Up to 2 sides of A4 – only required by the NERC lead application
Project Partner letter of support		From any named project partner or Chinese collaborator (up to 2 sides of A4). There is a JeS validation requiring the same number of attachments as Project Partners.
Letter of Support		Not permitted
Facility Form		Use only for application forms for Ship-time/Marine Equipment (SME), Antarctic Logistic Support (BAS should already have been approached before the outline proposal stage) and for High Performance Computing (HPC) when use of ARCHER exceeds 160MAU (in any one year).
Technical Assessment		Mandatory for any NERC Facility selected on the JeS proforma except those listed in the previous row. The full list is at

	<p>http://www.nerc.ac.uk/research/sites/facilities/apply/facilitiesrequiring-technical-assessment.pdf. The attachment should be a quote from the relevant facility. All facility costs must also be listed separately on the Je-S proforma under Other Directly Incurred Costs.</p>
Non-UK Components	<p>The details of the Chinese collaboration and costs incurred need to be listed here. Only required for the NERC lead application. Annex A should be used as the template.</p>
Equipment Section Attachments	<p>Under the Equipment Section there is a JeS validation requiring three quotations for each item of equipment requested over £25K and a Business Case (up to 2 sides A4) is required for equipment requests over the OJEU threshold limit.</p>
Collaboration details	<p>Access to site confirmation or description on how the confirmation will be obtained (up to 2 sides of A4). Only required for the NERC lead application</p>
Other attachment	<p>This attachment does not go out to reviewers and should not be used, except where a Head of Department is required to confirm the eligibility of one or more of the Investigators (this will be an internal document for NERC). If the document does not fit within any of the attachment types above, it probably should not be submitted.</p> <p>Contact researchgrants@nerc.ac.uk if unsure.</p>
Proposal Cover Letter	<p>This attachment does not go out to reviewers, so should not be used except to flag up a significant issue to the NERC Office (e.g. a request not to use a certain reviewer).</p>

7. Assessment process

Proposals will be peer reviewed by independent experts and assessed by a Moderating Panel who will provide NERC and NSFC with funding recommendations.

NERC will lead the peer review of the proposals. Reviewers and Panel Members will be selected in consultation with NSFC.

Applicants will have the opportunity to respond to reviewers' comments. This PI response stage will be in late September 2016 for all reviews. UK PIs should be ready to respond to this request for input and consult with their teams, including their Chinese collaborators.

Reviews and PI response will be considered at a UK-Chinese Moderating Panel in October 2016 who will grade and rank the applications. For each application the Panel will be provided with the Full Proposal, the reviewers' comments, and the PI's response to the reviewers.

The primary assessment criteria will be Research Excellence and Fit to Scheme (both Scientific and Non-scientific objectives). Further details of the assessment criteria are available on the NERC website⁸, as well as details of guidance and scoring for reviewer⁹ and panels¹⁰.

8. Kick-off workshop

The teams from successful proposals will be required to attend a kick-off workshop in March 2017 (date to be confirmed). The aim of this workshop is for project teams to come together and work with other successful proposals to explore opportunities to network, learn from each other and develop collaborative work that could add value to the initial investments. This integration might include various mechanisms such as: project integration (joint initiatives, meetings, regular communication, etc.); linking project plans/timelines/data dependencies/data flows; and possible work shadowing between projects. These follow-on activities are not intended to re-shape existing strategies but to help refine and adapt where there is value and to build in additional research activities that could not be delivered by a single award alone.

Following this workshop, a proposal detailing these activities will be prepared and then assessed. Additional funding for these activities will be available on approval by NERC, which will be added to successful grants as an additional funding stream after the award.

4. Timetable

1st June 2016	Announcement of Opportunity published
27 July 2016	Call closes
Late September 2016*	PI response stage
Late October 2016*	Moderating Panel
10 November 2016*	Successful applicants informed
11th January 2017*	Grants start
March 2017*	Kick-off workshop
January 2021	Grants end

*Dates are subject to change.

5. Contacts

For queries about the programme and call please contact:

NERC: Nicky Lewis

Email: betr@nerc.ac.uk

Tel: 01793 411739

NSFC: Li Wencong

Email: liwc@nsfc.gov.cn

Tel: +86 10 6232 7014

⁸<http://www.nerc.ac.uk/funding/application/assessment/assesscriteria/>

⁹<http://www.nerc.ac.uk/funding/application/howtoapply/forms/programmeguidance.pdf>

¹⁰<http://www.nerc.ac.uk/funding/application/howtoapply/forms/programmepanelguidance.pdf>