**Call Reference:** [**DN296821**](https://tenders.metoffice.gov.uk/procontract/metoffice/metoffice_contract.nsf/frm_contract_synopsis?openForm&contract_id=CONTRACT-ADQE-6WWKKD&from=&login)

*Met Office tendering on behalf of BEIS.*

**Expressions of Interest Title:**Estimating methane fluxes through inverse modelling (CSSP Brazil)

**To register your interest, see notes at the end of this page. Registering interest requires no proposal detail at this stage and carries no obligation to bid.**

**Estimated Value: £180,000 (£90,000 in FY18/19 and £90,000 in FY19/20)**

The grant is currently expected to be up to £180,000 for a 2-year period.

**Key Dates**

|  |  |
| --- | --- |
| **Estimated Publish of Call:**  *(Start of bidding period).* | 4th October 2017  *A notification email will be sent to parties who have formally registered their interest by way of clicking on the ‘Register Interest’ button displayed below the opportunity on the ProContract portal* |
| **Estimated Bidding Period:** | 6 weeks |
| **Estimated Award of Call:** | January 2018 |
| **Estimated Delivery Period:** | April 2018 – March 2020, 2 years |

**Background**

The Climate Science for Service Partnership Brazil (CSSP Brazil), supported by the UK Government’s Newton Fund, is a research programme that will support the development of capability to underpin services to inform decision makers in climate mitigation and adaptation strategy, supporting climate and weather resilient economic development and social welfare.

The Met Office anticipates holding a call for research proposals in October 2017. In preparation for the call, the Met Office is inviting expressions of interest from UK researchers.

**Summary of CSSP Brazil project aims**

This project aims to develop underpinning capability in climate modelling in Brazil; gain understanding of recent climate changes and Brazil's role in mitigation activities and greenhouse-gas budgets to inform international negotiations; and provide projections of future extremes and impacts, from seasonal to centennial timescales, to inform decision making and contribute to disaster risk reduction in Brazil.

Specific aims include improving land surface modelling for quantifying greenhouse-gas budgets and climate impacts; assembly of datasets that improve understanding of ecosystem functioning and enable process-evaluation of models; development of new evaluation techniques that build trust in simulations and constrain projected model outputs; and climate impacts research to improve understanding of natural disasters associated with climate variability and change.

The partnership is led in Brazil by the [National Institute for Space Research](http://www.inpe.br/ingles) (INPE), [National Institute for Amazon Research](https://www.inpa.gov.br/english/) (INPA) and the [National Centre for Monitoring and Early Warning of Natural Disasters](http://www.cemaden.gov.br/) (CEMADEN). We would expect the successful bidder to collaborate with these partners.

For further information please visit the project website - <http://www.metoffice.gov.uk/newton/cssp-brazil>

**Submissions are sought on** **methane flux estimation using inverse modelling to better understand Brazil’s CH4 budget from available observations.**

**Rationale:**

Methane is a key greenhouse gas with significant emissions from anthropogenic and natural sources and feedbacks with global and regional climate changes. As part of the UNFCCC process each country has a responsibility to understand and report its national emissions of greenhouse gases. The accepted method of doing this through accounting processes has significant uncertainties and it is important to have alternative methods to support the embedded assumptions. Inverse modelling using surface and remote observations can play an important role in this respect.

Process-based estimates from land-surface models and top-down estimates from atmospheric inversions have been used to quantify global CH4 budgets. Brazil is a significant emitter of CH4, but large uncertainties remain both between and within sectors and regions. What controls Brazil’s CH4 emissions is still poorly understood.

**Required research:**

To develop a high-resolution regional inverse modelling infra-structure centred on Brazil utilising available surface, airborne and satellite observations. Link with existing land-surface wetland modelling in CSSP-Brazil WP1 to gather together available a priori emission datasets into a cohesive and comprehensive database for use within the inversion system. To better understand the spatial and temporal distribution of CH4 fluxes across Brazil and surrounding areas with a special focus on understanding the anthropogenic and non-anthropogenic split of emissions, including sectors such as fossil fuel, agriculture, wetlands and fire.

The work should produce a critical assessment of how top-down and bottom-up modelling differ, and the relative strengths and weaknesses of each.

**Anticipated outputs or results:**

* Regional inverse modelling capability over Brazil and surrounding areas.
* Database of existing a priori emission information and available observations.
* Attribution of Brazil’s CH4 budget, at sub-annual scale, to sinks and natural and anthropogenic sources and processes

It is hoped that all of these activities will result in peer-reviewed journal articles.

**Background on the Newton Fund WCSSP Programme**

The Newton Fund builds scientific and innovation partnerships with partner countries to support their economic development and social welfare, and to develop their research and innovation capacity for long-term sustainable growth. It has a total UK Government investment of £735 million up until 2021, with matched resources from the partner countries. The Newton Fund is part of the UK’s official development assistance ([ODA](http://www.newtonfund.ac.uk/about/what-is-oda/)). The Newton Fund is managed by the UK Department for Business, Energy and Industrial Strategy (BEIS), and delivered through 15 UK Delivery Partners, which include the Research Councils, the UK Academies, the British Council, Innovate UK and the Met Office. For further information visit the Newton Fund website ([www.newtonfund.ac.uk](http://www.newtonfund.ac.uk)) and follow via Twitter: [@NewtonFund](https://twitter.com/newtonfund?lang=en-gb).

The Met Office is administering the Newton Fund through the Weather and Climate Science for Service Partnership (WCSSP) Programme, comprising Projects to develop partnerships harnessing UK scientific expertise to build the basis for strengthening the resilience of vulnerable communities to weather and climate variability.

For more information please refer to <http://www.metoffice.gov.uk/newton>

**How to Apply:**

*The above Expression of Interest is advertised on the Met Office ProContract e-Tendering portal called ProContract. To access and register your interest you will need to log onto the ProContract portal via this link:* [***tenders.metoffice.gov.uk***](https://tenders.metoffice.gov.uk)*You may need to search for the Call reference* **[DN296821](https://tenders.metoffice.gov.uk/procontract/metoffice/metoffice_contract.nsf/frm_contract_synopsis?openForm&contract_id=CONTRACT-ADQE-6WWKKD&from=&login" \o "View Contract Dashboard).**

***You will need to register your company (if you have not already done so) and register your interest against the opportunity before you are able to access the tender documents.***

*If you require guidance or ‘how to’ instructions – see the supplier manuals on the right hand side of the supplier home page.*

***Online Discussions between Bidders and the Met Office:***

*There is a Discussions function on ProContract which shall be used to provide all further information regarding this opportunity including any changes to time scales, scope or clarifications.* ***This function must be used by bidders to submit all clarification questions.***