

SWIMMR S5: networkable instruments for ground-level neutron monitoring

Opportunity status:	Open
Funders:	Science and Technology Facilities Council (STFC)
Funding type:	Grant
Maximum award:	£140,000
Publication date:	25 February 2021
Opening date:	15 February 2021
Closing date:	13 April 2021 16:00 UK time

Last updated: 26 March 2021

Apply for funding to develop and demonstrate a prototype ground-level neutron monitoring network. Your prototype should aim to deliver compact instruments that:

- operate independently in remote locations
- produce results comparable to existing monitors
- provide data that can be used by the Met Office and airborne radiation modelling.

You and your organisation must be eligible for UKRI funding.

There are two phases to the project:

- design study phase, lasting up to 12 months
- implementation phase, lasting up to 24 months.

This opportunity is part of the Space Weather Innovation, Modelling, Measurement and Risk (SWIMMR) project, funded by the Strategic Priorities Fund.

We would like to draw your attention to a new Compliance Table which has been added into Section 8.3 of the Announcement of Opportunity. Applicants must use this version when preparing their proposals.

Who can apply

Find out about [individual and organisational eligibility for UKRI funding](#).

Information regarding individual eligibility can be found in the [STFC Grants Handbook](#).

UKRI research and fellowship grants for all schemes may be held at:

- approved UK higher education institutions (HEIs)
- approved research council institutes (RCIs)
- approved independent research organisations (IROs).

Read [full details of approved RCIs and IROs](#).

Public sector research establishments (PSREs) with 10 or more researchers with PhDs (or equivalent) are eligible to apply. If PSREs wishing to apply have not previously applied for UKRI funding and are not currently designated IRO status, they will be required to complete an eligibility form to ensure they have the required research capacity, systems and controls in place to manage the research and grant funding. PSRE applicants should contact STFC Programme Office at the earliest opportunity to discuss their interests in applying.

Due to the uncertainty caused by the coronavirus pandemic, if any potential applicants are interested in applying to this opportunity but impacted by the measures being put in place by UK government, please contact us and we will be happy to discuss this with you.

What we're looking for

The objective of the Space Weather Innovation, Modelling, Measurement and Risk S5 (SWIMMR S5) project is to develop and demonstrate a prototype network of compact instruments for ground-level neutron monitoring, ideally suitable for unattended operation in relatively remote locations.

Instruments should be tested, and test results presented, to verify that such instruments can produce results comparable to those from existing ground level neutron monitors, such that they could enhance global existing capabilities.

As a proof of concept, a small network of two or more such instruments should be operated as part of a test deployment, to provide a data stream capable of being ingested into the Met Office and feeding into the airborne radiation modelling being developed as part of SWIMMR N2.

The S5 project will be implemented in two phases, the design phase and implementation phase.

Applicants must firstly submit a proposal for a design study. Upon the successful completion of the design phase, and subject to funding, the team will be invited to

apply for funding for the implementation phase of the project.

Please note that due to this two phase approach, there may be a short gap between completion of the design phase and start of the implementation phase to allow for assessment and peer review, and subject to budgets being confirmed.

Applicants submitting a proposal for the design study must include details of both the design phase and implementation phase within their case for support.

Please see the full information about applying for this opportunity in the [SWIMMR S5 announcement of opportunity \(PDF, 197KB\)](#).

Required deliverables

The required deliverables from this opportunity should include:

- a design for a compact ground-level neutron monitor
- two or more working prototypes, based on the above design
- documented results from testing of such prototypes in a recognised neutron test facility, such as STFC's ChipIr
- demonstrated operation of a small network of two or more prototype instruments in the field, including the provision of a data stream suitable for MOSWOC.

The risk is recognised that the utility of the network might not be clearly demonstrated if there are no ground level enhancement (GLE) events occurring between the deployment stage and the end of the project.

Research elements

It is expected that some element of research work may be needed in connection with this project, in order to establish some of the principles behind the design of a novel detector. Such research might include one or more of the following:

- conversion of sensor technologies already used for other applications (for example, in agriculture)
- identification of other potential uses for devices capable of ground level radiation monitoring
- development of techniques for validation against data from more established sensors
- development of techniques for autonomous operation in unattended settings.

Other research topics can also be considered if a compelling case is made.

Research must demonstrate that it has the potential to lead to improvements in instrument accuracy, or more comprehensive or durable operations.

Funding available

Funding is split across the two phases as follows.

Design study

A maximum value of £140,000 (this is the research council 80% contribution) is available for the initial design study for up to 12 months.

Implementation phase

It is expected that the maximum value of the implementation phase may be £1,260,000 (this is the research council 80% contribution) over a maximum of 24 months (following successful completion of the design phase), but this budget is yet to be confirmed. The implementation phase must be completed by 31 March 2024 at the latest.

UKRI's funding contribution for proposed projects will be at 80% of full economic cost (FEC) , with the standard exceptions paid at 100% FEC. Indexation at the prevailing rate will be applied at the time of award.

Please note that the award of funding for the design phase does not guarantee funding for the implementation phase.

No projects shall apply for PhD funding as part of this opportunity.

How to apply

All proposals must be submitted through the [Joint Electronic Submission system \(Je-S\)](#).

When applying, please select:

- council: STFC
- document type: Standard Proposal
- scheme: Standard
- call: SWIMMR S5.

For the list of documents that must be submitted with the proposal, see the [SWIMMR S5 announcement of opportunity \(PDF, 197KB\)](#).

Applicants are encouraged to contact the STFC Programme Office at an early state to discuss any questions on opportunity procedures: sarah.garlick@stfc.ukri.org.

For any scientific and remit queries, please contact: ian.mccrea@stfc.ac.uk.

How we will assess your application

Full proposals will be assessed by a streamlined peer review process involving consideration by a specially convened, expert, international assessment panel. Representatives from the Met Office as the end user will also be present at the peer review panel meeting.

Applicants (PI plus a maximum three others) will be invited to present and discuss their proposal with the panel. The panel's assessment will be based both upon the quality of the proposal documentation and the clarification provided by the applicants at interview.

Assessment criteria

The assessment criteria to be used will be as follows.

Excellence

Originality and quality of the proposed research/innovation activities and the potential of the proposal to deliver original, high quality activities of national importance and international standing.

Fit to scheme

Proposals will be directly scored against the degree to which they address the objectives and scope of the relevant topic of the SWIMMR opportunity, as detailed in the 'General, Technical and Project Specific Requirements' set out in the announcement for opportunity.

Proposals which do not strongly meet the criteria of the opportunity will not be considered for funding.

Management arrangements

This includes resources and the effectiveness of the proposed management structure.

Track record

Track record of applicants to demonstrate the ability to deliver the project.

Assessment information

Please note:

- there is no outline/expression of interest stage under this opportunity
- proposals will not be sent to external reviewers, therefore there will not be a PI/applicant written response to reviewers' comments stage; PIs will be invited to attend the assessment panel meeting to address any questions
- applicants will be given limited feedback from the panel summarising the reasons why the proposal was successful/unsuccessful. No further feedback will be available.

The recommendations of the peer review panel for each proposal will be considered by the SWIMMR Programme Board. The board will make recommendations on the overall fit and coherence of the S5 proposals, in line with the expected interdependencies and any needs for further cross theme/cross programme coordination. A portfolio approach will be used to ensure the breadth of the scope is addressed. STFC will use the recommendations of the assessment

panel and the SWIMMR Programme Board, along with the overall opportunity requirements and the available budget in making the final funding decisions.

Please note that grants are awarded under the [standard UKRI grant conditions](#). Additional grant conditions will also be added regarding reporting requirements and a formal IP agreement between the proposers and the Met Office.

Contact details

For any enquiries, please contact:

- Sarah Garlick, Senior Programme Manager, STFC Programmes Directorate: sarah.garlick@stfc.ukri.org
 - Ian McCrea, SWIMMR Senior Programme Manager, RAL Space: ian.mccrea@stfc.ac.uk
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Additional info

Supporting documents

- [SWIMMR S5 announcement of opportunity \(PDF, 197KB\)](#).
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Timeline



