Announcement of Opportunity:
Space Weather Innovation, Modelling, Measurement and Risk (SWIMMR)

S5: Networkable instruments for Ground-Level Neutron Monitoring

Call launched: February 2021
Closing date: Tuesday 13th April 2021, 16:00

1. Summary

STFC invites proposals for the development and demonstration of a prototype network of compact instruments for ground-level neutron monitoring, ideally suitable for unattended operation in relatively remote locations, to mitigate the potential radiation hazards of space weather. This topic forms part of the Space Weather Innovation, Modelling, Measurement and Risk (SWIMMR) project which is funded as part of the UK Research and Innovation (UKRI) Strategic Priorities Fund (SPF). SWIMMR is managed jointly by STFC and NERC, and is funded by UKRI which has allocated ~£20M to the overall programme. The UK Met Office will be the end user of models and instruments developed in SWIMMR.

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.

The total maximum amount of STFC funding available for the S5 project is £1,400,000. UKRI's funding contribution for the proposed project will be at 80% of FEC (with the standard exceptions paid at 100% FEC) up to the maximum sum of £1,400,000. Indexation at the prevailing rate will be applied at the time of award.

Funding is split across the two phases as follows:

1. 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.
2. 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 31st March 2024 at the latest.

2. Background

2.1 Strategic Priorities Fund

The Strategic Priorities Fund (SPF) has been set up to build upon the vision of a ‘common research fund’ set out in Sir Paul Nurse’s independent review of the Research Councils. The fund will drive an increase in high-quality multi and interdisciplinary research and innovation, ensure that UKRI’s investment links up effectively with Government departments’ research priorities and opportunities, and ensure that the system is able to respond to national strategic priorities and opportunities.

2.2 SWIMMR Objectives

SWIMMR aims to significantly improve the UK’s space weather monitoring and forecasting capabilities, especially mitigating those risks with the highest potential for economic and societal impact. The programme aims to benefit both governmental and commercial sectors. The resultant world-leading space weather forecasting and mitigation capability will not only safeguard our considerable national investment in space-based infrastructure but will also confirm the UK’s reputation as an international leader, with potential to collaborate with key partners internationally.

This programme is driven by the UK’s ever-increasing reliance on modern technology. This includes our growing dependence on space-based systems for communications, global positioning and time-keeping. It also supports our aspirations to become a leading space-faring nation, based on capabilities to both launch and support UK-licensed space assets. As well as operation of satellites and other space technology, SWIMMR addresses space weather effects on ionosphere dependent and affected systems, radiation effects on avionics, and the effects of geomagnetically induced currents (GICs) on power distribution grids.

SWIMMR involves a programme of activities involving STFC and NERC together with academic, industrial and governmental stakeholders. This coordinated approach across multiple partners will support a step change in capability, by greatly increasing the range of space weather monitoring and prediction services offered by the Met Office and by developing new instruments and facilities to service the UK stakeholders affected by space weather hazards. The UK Met Office, as the UK delivery agency for space weather forecasts, will be the primary end user for the models and instruments delivered by this research-to-operations programme.

2.3 Scope of the SWIMMR project

The primary purpose of SWIMMR is to transition space weather research to operations (at the UK Met Office) in order to provide new forecasting and analysis capabilities. SWIMMR projects are very likely to draw on earlier Research Council funded projects and/or research funded by other agencies.
SWIMMR consists of a number of largely independent projects, further described below:

- S1: Improved in-situ radiation measurements for space and aviation
- S2: Technology testing and modelling
- S3: Research to Operations support
- S4: Forecasting from Sun to L1
- S5: Ground radiation monitor network
- S6: Space weather impact assessment study
- N1: Satellite radiation risk forecasts
- N2: Aviation risk forecasts

- N3: GNSS and HF aviation forecasts
- N4: Ground effects forecasts
- N5: Satellite drag forecasts.

Projects S1-S6 will be delivered by STFC, while projects N1-N5 will be delivered by NERC. This Announcement of Opportunity only addresses the STFC call for project S5.

3. Equality, Diversity and Inclusion

The long term strength of the UK research base depends on harnessing all the available talent and the Research Councils have together developed the ambitious UK Research and Innovation Equality, Diversity and Inclusion Action Plan

In line with the UK Research and Innovation Diversity Principles, STFC expects that equality and diversity is embedded at all levels and in all aspects of research practice. We are committed to supporting the research community in the diverse ways a research career can be built with our investments. This includes career breaks, support for people with caring responsibilities, flexible working and alternative working patterns. With this in mind, we welcome applications from academics who job share, have a part-time contract, need flexible working arrangements or those currently committed to other longer, large existing grants. Please see our Equality and Diversity webpages

4. Project Requirements

The general, technical and project specific requirements shall be addressed and their compliance shall be described in a compliance table forming part of the Case for Support.

4.1 General Requirements

1. Project Cost: The project cost shall be less or equal to the specified budget, defined both in section 1 (above) and at the end of the project description (below). Any proposals costing more than the available budget will not be assessed.
2. Relevant dates: These are given in Section 11 and should be adhered to; however if your ability to respond is likely to be affected due to the Coronavirus pandemic, please contact us and we will be happy to discuss this with you.
3. Licencing: Please see Section 6.4, Licensing and Knowledge Exchange.
4. Liaison: Project proposals shall demonstrate ongoing project liaison with the Met Office to aid integration of the project outputs with the Met Office Space Weather Operations Centre (MOSWOC) operational forecasting environment.
5. Linkages: Project proposals shall highlight any linkages with other projects in the SWIMMR programme, or other relevant projects.
6. Dependencies: Project proposals shall clearly identify any critical dependencies on factors outside the control of the project team, including obligations to external groups and organisations.
7. Milestones: Project proposals shall provide a list of milestones and associated delivery dates. Milestones can be either technical reports or deliverables (to UKRI and the Met Office), see below.
8. Delivery Plan: Project proposals shall demonstrate a credible delivery plan. (Note that STFC, on advice from the Programme Board, may choose to close projects which are consistently failing to deliver against those agreed milestones and deliverables and this will be reflected in the grant conditions).

5. S5: Networkable instruments for Ground-Level Neutron Monitoring

5.1 Background

The first international networks of ground-level neutron monitors were established during the International Geophysical Year of 1957-58. They remain an important complement to airborne and space-borne radiation measurements, capable of measuring the intensity variations in primary and secondary cosmic radiation in the approximate energy range from ~500 MeV to >30 GeV. Sixty years on, some of the original IGY monitoring stations are still operating and the technology of these instruments has changed very little. Present day neutron monitoring stations tend to house large and bulky instruments, with lead lining of detector buildings being a favoured technique to facilitate the production of the secondary neutron flux on which the measurement technique relies. Currently there are only around 50 active stations for ground-level neutron monitoring worldwide, with none in the UK.

Project S5 aims to demonstrate that there are alternative technologies available for ground level neutron monitoring, which would in principle allow the construction and operation of significantly cheaper instruments and facilitate a re-introduction of monitoring in the UK and a major increase in the amount of monitoring available worldwide.

5.2 Objectives

The objective of the 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.

5.3 Required Deliverables

The required deliverables from this call 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 GLE events occurring between the deployment stage and the end of the project.

5.4 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 (e.g. 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.

5.5 Assumptions and Dependencies on other SWIMMR Projects

It is assumed that demonstration of a suitable detector includes the provision of a data stream suitable for use by the Met Office and validated by comparison with the operation of more established types of ground level radiation monitor.

Project S2 (Support for technology testing and modelling) is providing financial support and hardware upgrades to the ChipIr facility, based in the ISIS neutron spallation source at Harwell. It is assumed that some element of prototype testing for project S5 could be done using this facility.

Project S3 (Research to Operations support) will develop an IT infrastructure which includes the ability to provide real-time data streams to space weather models being tested and validated for future operational use at the Met Office. One of these models, which will be developed in project N2, will be the SWIMMR Aviation Risk Model (SWARM). It is assumed that the instrument to be prototyped in SWIMMR S5 will be capable of producing a data stream suitable for either assimilation into, or verification of, the SWARM model produced in SWIMMR N2, via the software environment produced in SWIMMR S3. Proposers may assume that a sufficiently mature version of the S3 infrastructure will be in place by June 2021.

It is expected that any sensor being developed in SWIMMR S5 should produce output data in a form which allows it to be easily combined with data from the network of international ground-level neutron monitors being operated worldwide.

5.6 Milestones

The following table of milestones illustrates the expectations of STFC and the Met Office for this project. The proposers are at liberty to propose different milestones which may better represent their proposal.

Table 1: Exemplar Milestones

Design Phase – up to 12 months		
DN1.1	Initial report on technical approach, scientific justification and proposed instrument design	6 months
DN1.2	Detailed design of prototype instrument	12 months
	The outcome of the design phase should be sent to STFC at least one month before the end date of the design phase. This will be assessed, and if successful, and subject to budgets, the applicants will be invited to submit a proposal for the implementation phase. This will be peer reviewed by the Panel.	

Implementation Phase – up to 24 months		
DN1.3	Construction of working prototype and start of test phase	18 months
DN1.4	Report on test phase including documented test results	24 months
DN1.5	Prototype field trials, including provision of data stream to Met Office	30 months
DN1.6	Final report on instrument performance and research advances, finalisation of instrument designs ready for production.	36 months

5.7 Budget and Timescales

This project will be split into two phases as follows:

1. 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. The applicants may complete the design phase in a timescale shorter than 12 months if they wish, for example, using more staff effort in a shorter timeframe (but within the available budget).
2. 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 31st March 2024 at the latest.

The total value of both phases of project S5 is expected to be £1,400,000 (this is the Research Council 80% contribution), subject to budgetary approval, with an end date no later than 31st March 2024.

6. Project governance, reporting, data management, knowledge exchange and liability

6.1 Governance

Each funded project will be managed as a single entity by the Principal Investigator (PI) who will report to the SWIMMR Senior Programme Manager (SPM) at the Rutherford Appleton Laboratory operating on behalf of STFC and NERC.

The programme is managed and overseen by the SPF SWIMMR Programme Board, which is advised by the SPF SWIMMR Strategic Advisory Committee. Funded projects will be required to work with the SPF SWIMMR coordination team and engage with cross-programme activities.

6.2 Reporting requirements

There are a number of reporting requirements as described below and will be included as an additional grant condition on the successful award. All reports shall be delivered to the SPM.

- **Journal Papers and Technical Reports.** Applicants are encouraged to submit journal papers. In addition, and as appropriate to the project, technical reports forming deliverable milestones are required.
- **Progress Reports.** Short (~3-pages) progress reports are required every three months to enable the SPF SWIMMR Programme Board to track progress. The SPM will provide a template for these reports. The applicant should be prepared to respond to reasonable requests for additional information.
- **Final Report.** A detailed final technical report shall be delivered.
- **SWIMMR Meetings**. Successful applicants are expected to attend an annual SWIMMR symposium. It is anticipated these symposia will be at STFC RAL or at the Met Office or in Swindon.
- **Project Meetings.** Successful applicants are expected to coordinate six monthly progress meetings at which STFC, NERC and the Met Office will be represented.
- **Researchfish.** SWIMMR participants are required to engage in the monitoring and evaluation of the programme by the Programme Management to facilitate the assessment of the programme in reaching its goals and supporting future funding calls.
  SWIMMR lead participants, from both research and industrial teams are required to complete a survey to support evaluation at the project start, project end and 5-10 years post project end (final time frame tbc following programme end). All grants are to be reported on through the Researchfish portal at least annually, and SWIMMR participants are requested to make reference to the Researchfish guidance at Annex 1 to ensure all required reporting parameters are included in annual submissions. Questions regarding monitoring and evaluation should firstly be directed to Project Manager Mila de Vere (mila.de.vere@stfc.ac.uk) or Programme Manager Ian McCrea (ian.mccrea@stfc.ac.uk), and if further clarification is needed, Evaluation Programme Manager Fiona Larner (fiona.larner@stfc.ukri.org).

6.3 Data management

In accordance with STFC policy, projects are expected to complete a data management plan. This should be submitted as an attachment to the JeS pro forma and is a mandatory requirement for all proposals to this call. The plan should be no longer than two pages of A4. The plan, together with any costs associated with it, will be considered and assessed by the normal peer review process. The data management plan should explain how the data will be managed over the lifetime of the project and, where appropriate, preserved for future re-use. Applications that do not have a data management plan will not be accepted. More information can be found in the Research Grants Handbook.

6.4 Licensing and Knowledge Exchange

Applicants are requested to submit a document under “Other Attachments” providing information on Licensing and Knowledge Exchange, as required by the Met Office, which should cover two areas as follows:
The first relates to intellectual property and licensing. Above all other considerations, SWIMMR seeks to transition research to operations in the Met Office. Consequently, it is critically important that the Met Office can use the foreground IP (including models, data and technology) developed in SWIMMR and, where necessary, also use the background IP (Including models, data and technology) on which the foreground research is based. Consequently, each project proposal shall be accompanied by a statement at the start of the document such that:
“All institutions and individuals, forming part of this proposal, will grant a royalty free, irrevocable, non-exclusive licence for foreground and dependent background IP (including models, data and technology) to the UK Met Office for research and non-commercial operations, excluding the following [*insert a schedule of models, data and technology which*

are not owned by the proposers]. This noting that foreground and background IP remains exclusively owned by the originator."
A proposal without this statement will not be assessed.

The second requirement of this document is to identify Knowledge Exchange (KE), with associated delivery costs identified where relevant. (These activities do not have to be cost-incurring; it is not a requirement to include funded activities. Any funds required to carry out any proposed, outcome-driven activities identified within this **must** be fully justified within the Justification of Resources statement.)

Please note that in SWIMMR, this document should focus on interactions with the Met Office, scientific dissemination and public understanding. Engagement with other stakeholders should not be addressed since this will be the responsibility of the Met Office.

Please note that a grant condition will be added to the grant to state that there must be a formal IP agreement between the proposers and the Met Office. If such agreement is not in place and IP issues are addressed, STFC may withdraw the grant.

7. Liability

On acceptance and adoption of the models, data and technology, the Met Office will assume liability for their operational use.

8. Application process

8.1 Limitations

1. PhD Funding: No projects shall apply for PhD funding as part of this call.

8.2 Application Process

Where necessary, applicants are encouraged to contact the STFC Programme Office at an early stage to discuss any questions on call procedures (SWIMMRSTFC@stfc.ac.uk). Scientific and remit queries should be emailed to the Senior Programme Manager (SPM) (ian.mccrea@stfc.ac.uk)

Applicants are also encouraged to discuss their proposal with the Met Office by the date specified in Table 4. Please contact the Met Office, via:
simon.machin@metoffice.gov.uk or david.jackson@metoffice.gov.uk.

In the first instance, applicants are invited to submit a proposal for the design phase. The JeS form should include funding for the design phase only, for a period of up to 12 months. However, please ensure the case for support includes details of both the design phase and the implementation phase as noted in this document, so that the Panel can see the project plans in its entirety.

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

The successful team will be required to submit a report on the outcome of the design phase to STFC at least one month before the end date of the design phase. This will be peer reviewed by the Panel and by the SWIMMR Programme Board.
If the design phase is successfully passed, the applicants will be invited to submit a proposal (JeS form and case for support) for the implementation phase. It is expected that the

content of the case for support relating to the implementation phase will essentially be the same as that submitted within the design study, however if there are any changes these should be made clear.

The proposal for the design phase must be submitted using the Joint electronic-Submissions system (JeS). Please select Document Type - 'Standard Proposal', Scheme - 'Standard', Call – “SWIMMR S5”.

Applicants must ensure that their proposal is received by STFC by the specified time on the closing date. The JeS system will close at that time and proposers will not be able to submit to STFC after that time. Proposers should leave enough time for their proposal to pass through their organisation’s JeS submission route before the closing date and time. Any proposal that is incomplete or does not meet the eligibility criteria of STFC will be rejected and will not be considered.

Due to the uncertainty caused by the Coronavirus pandemic, if any potential applicants are interested in applying to this Call 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.

All attachments submitted through the Je-S system must be completed as specified in the JeS helptext: https://je-s.rcuk.ac.uk/Handbook/pages/GuidanceonCompletingaStandardG/CaseforSupportandAttachments/STFCspecificrequirements.htm

The correct attachment type should be used in JeS as that determines whether attachments are visible to Panel Members. Attachments must not exceed the page limits specified for the attachment type and scheme, regardless of the number of component Research Organisations.

Attachments should be converted to PDF and checked prior to attaching to the proposal in JeS, as PDF conversion of documents with any non-standard fonts (scientific notation, diagrams etc.) can result in changes, such as missing data or increased document length.

8.3 Tables to be embedded in Case for Support

Two supporting tables are required for inclusion in the Case for Support. These tables will form an important part of the assessment process.

- Milestone Plan
  The Case for Support shall list and describe a series of milestones which may be reports and/or deliverables. Exemplar milestones have been provided in Table 1 (above), but these may be adapted to suit the proposal.

- Compliancy Table
  A compliancy table shall be incorporated into the Case for Support to illustrate compliance or otherwise. The required format is described in Table 2.

Table 2: SWIMMR S5 Compliancy Table

This compliancy table is intended as a checklist, to ensure that the Case for Support contains all of the information needed for a review panel to make an informed decision about the funding application. This means that details of the items below should be presented as text in the Case for Support, and not just in the following table.

Requirement	Compliance (Yes, No, Partial)	Explanatory comments
GENERAL REQUIREMENTS (see Section 4.1)		
Does the application include the full costings for both project phases?		
Does the application contain a clear delivery plan, listing proposed milestones and deliverables, with dates?		
Has the application specified the number and cost of any prototypes to be produced in the design phase of the study?		
Has the application specified the number and cost of detectors to be produced in the development phase of the study?		
Have all issues associated with intellectual property, patents and licensing been addressed?		
Have any critical dependencies outside the control of the project team been identified, including obligations to external groups and organisations?		
Are the applicants happy to liaise with the UK Met Office and to link to other SWIMMR projects as required?		
TECHNICAL REQUIREMENTS		
Have the operating principles of the proposed instrument(s) been clearly explained in the application?		
Has the application demonstrated that the proposed detector(s) would be sensitive to space weather radiation events, such as GLEs and Forbush decreases?		
Have the anticipated count rates been included?		
Have the required procedures to recover primary fluxes from measured count rates been described?		
Have issues of environmental effects and detector stability been addressed?		
Have the required sensor calibration procedures been described?		
Have the required models, test facilities and access to such facilities needed to establish instrument performance been described?		

Has the potential for instruments to operate stably and autonomously for long periods, with low maintenance, been demonstrated?		
Have the instrument siting and power requirements been clearly described?		
Have any potential sites been identified for an initial UK deployment?		
Has the proposed instrument been assessed for ease of deployment at the intended sites, both in terms of size and weight and regulatory requirements regarding hazardous or controlled materials?		
Have any synergistic uses of the detectors been mentioned?		
IT REQUIREMENTS		
Have the proposed data rates and data formats been outlined?		
Has the proposed method for data transfer been described?		
Can the observations be delivered in near real time and with sufficient quality, to ensure that they effectively support Met Office operational alerts and forecasts?		
Are there any objections to the data from the networked instruments becoming the property of UKRI and Met Office?		
Would the applicants be willing to discuss the distribution, management and format of data with other relevant SWIMMR projects?		

8.4 Summary

The following table summarises the documents which shall be submitted to STFC via the JeS system.

Table 3: Document Submission Requirements

Document or attachment type	**Requirements**
Proposal Form	JeS proforma. The topic being addressed should be clearly indicated in the first line of the objectives.
Case for Support	Comprising a common Previous Track Record incorporating all Research Organisations involved (up to **3** sides of A4), and a common Description of the Proposed Research (up to **20** sides of A4 including all necessary

	tables, references and figures). The latter will include a Compliancy Table following the format in Table 2 and also a Milestone Table. The justification of resources of up to **4** pages in length must be included in the case for support. The total page limit for the Case for Support is up to **27** pages.
GANNT Chart	A scheduling chart and other relevant plans and participant responsibilities (up to **2** sides A4).
Data Management Plan	A **2** page data management plan should be submitted detailing the requirements as set out on the STFC website
Letters of Support	Letters of support can only be attached to the lead proposal. Project Partner letters from the Met Office or other stakeholders are not expected.
Other attachments	Please submit the Licensing and Knowledge Exchange document up to **2** sides of A4 under this heading.
Proposal cover letter	This attachment should not be used except to flag up a significant issue to the STFC Programme Office (e.g. a potential conflict of interest).

9. Eligibility

Individual and organisational eligibility is detailed in on the UKRI eligibility web pages.

UKRI research and fellowship grants for all schemes may be held at approved UK Higher Education Institutions (HEIs), approved Research Council Institutes (RCIs) and approved Independent Research Organisations (IROs). Full details of approved RCIs and IROs can be found on the UKRI website.

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

10. Assessment process

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.

Applicants (PI plus a maximum three others) will be invited to present and discuss their proposal with the Panel. The Panel meeting will take place via Zoom. The Panel's assessment will be based both upon the quality of the proposal documentation and the clarification provided by the applicants at interview. 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 call as detailed in the General, Technical and Project Specific Requirements set out in this

document. Proposals which do not strongly meet the criteria of the call will not be considered for funding.
- Management arrangements. This includes resources and the effectiveness of the proposed management structure.
- Track record of applicants to demonstrate the ability to deliver the project.

Please note:
- There is no outline/EOI stage under this call.
- 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 Call 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.

11. Timetable

Table 4: Timetable

Announcement published	Feb 2021
Deadline for initial discussion with the Met Office	Tues 30th March 2021
Deadline for submission of full proposals (including JeS form for funding for design phase)	Tues 13th April 2021
Peer Review panel assessment SWIMMR Programme Board meetings Latest date for award notification	Weeks beginning 10th / 17th May 2021 TBC Depends on SWIMMR PB date
Latest start date for projects – design phase	1st July 2021
Submission of report for the outcome of design phase	At least one month prior to end date of design phase
Latest possible end date for design phase	30th June 2022
Assessment of outcome of design phase (Peer Review Panel and SWIMMR Programme Board)	ASAP once design phase report has been submitted.
Submission of proposal for implementation phase	TBC

Peer Review Panel assessment SWIMMR Programme Board meetings Latest date for award notification	TBC TBC TBC
Project completion – latest date	31st March 2024

12. Contacts

For eligibility, submission, and peer review queries, please contact Sarah Garlick, STFC Programme Office: SWIMMRSTFC@stfc.ac.uk

For scientific and remit queries, please contact the Senior Programme Manager (SPM): ian.mccrea@stfc.ac.uk

For Met Office inquiries please contact:
simon.machin@metoffice.gov.uk or david.jackson@metoffice.gov.uk

Enquiries relating to technical aspects of the Je-S form should be addressed to the Je-S helpdesk Email: JeSHelp@je-s.ukri.org. The Helpdesk is staffed Monday to Thursday 8:30 am to 5pm and Fridays 8:30am to 4:30pm (excluding public and other holidays).

13. Useful links

Below is a list of links applicants may find useful when applying for UKRI grants:

Peer Review Framework

ResearchFish

Equality and Diversity

Unconscious Bias

JeS Handbook

STFC Research Grants Handbook

UKRI Terms and Conditions

Annex 1

UKRI Guidance for Outcomes Reporting of SWIMMR projects on Researchfish

Background

UK Research and Innovation uses the researchfish online system to collect information on the outcomes that have arisen from UKRI-funded research and training. Recipients of UKRI funding are required to report emerging outputs, outcomes and impacts for the duration of their awards and for up to five years beyond. Captured outputs are crucial for demonstrating the benefit of SWIMMR activities. Information provided will be made publicly available through the Gateway to Research portal. Following the submission period, UKRI and the Department for Business, Energy and Industrial Strategy (BEIS) will review the information submitted to researchfish as part of our ongoing monitoring and evaluation activities.

Deadlines

Outcomes can be entered into researchfish at any time, but once a year there is a formal submission period when researchers are required to confirm that their outcomes information is accurate and up-to-date. The UKRI submission period normally takes place **between early February and mid-March.**

Section Guidance

The researchfish system provides general guidance about how to use the system and provide information that is of interest to funders. The following tables provide additional guidance about reporting on SWIMMR awards that should be used to **supplement regular reporting**.

A. Common Question Set

Section	Guidance
Collaborations and Partnerships	Within the answers of the section '*details of the collaborator(s) and/or partner(s)*' please: • Identify the collaborations/partnerships that were included as part of the original application • Identify any additional collaborations/partnerships within that arose during the course of the award and where appropriate, highlight the extension of collaborations/partnerships beyond the lifetime of the award • Include collaborations/partnerships that are not directly related to SWIMMR but have arisen due to contacts made through the programme and identify them as such if relevant • Classify the collaborations based on the following list: o STFC-NERC collaboration o STFC/NERC-Industry collaboration o STFC/NERC-University collaboration o STFC/NERC-Other research council collaboration o Industry-Industry collaboration o University-University collaboration o University-Industry collaboration
Further funding	Within your answers to this section please: • Identify any further funding obtained by participants of your SWIMMR project, including collaborators, for both space weather research and that outside the field.
Next Destination	Within your answers to this section please:

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	• Identify the next destination of participants from all participants in your project, including those outside your organisation
Engagement Activities	No additional guidance for SWIMMR awards
Artistic & Creative Products	Within your answers to this section please: • Provide details of the subsequent use of the outcome • Please describe any technology that has been developed/built/commissioned in UK labs due to SWIMMR • Please indicate if any models or products from SWIMMR have been adopted or had any interest shown from the international community
Medical Products, Interventions & Clinical Trials	
Research Databases & Models	
Research Tools & Methods	
Software & Technical Products	
Influence on Policy, Practice, Patients & the Public	No additional guidance for SWIMMR awards
Intellectual Property & Licensing	If available, please include the total value of turnover and the share of turnover attributed to SWIMMR partners
Spin Outs	No additional guidance for SWIMMR awards
Awards & Recognition	No additional guidance for SWIMMR awards
Use of Facilities & Resources	In addition to existing facilities, please include new facilities and resources created from SWIMMR in this section, and outline the future use and impact in the 'subsequent impacts' box (as well as any current use if already ongoing)
Other Outputs & Knowledge / Future Steps	Must be completed for all SWIMMR awards. Please add a new entry in this section for each title below and include the information described. If further information is available that is not covered by these entries, please add as many other entries as required to cover the outputs of the award. <u>Entry 1: Publications</u> • If a publications has co-authorship across disciplines o state DOI, state disciplines involved • If a publication has involved a UK/UK or UK/international collaboration o State DOI, state countries involved, state affiliation of lead and/or senior author <u>Entry 2: MIDRI</u> We are interested in any multi-disciplinary research and innovation that has taken place, whether or not outputs such as IP or publications have arisen from it. Please outline here if applicable: • Number of projects/teams involved in MIDRI before, during and after the programme, including those directly related to

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	SWIMMR and those created through SWIMMR contacts but on separate projects. • Number of researchers working across different research fields before, during and after funding. • New MIDRI funding schemes proposed due to inspiration from SWIMMR • Involvement in any further cross-UKRI funding initiatives since SWIMMR started <u>Entry 3: Participant Mobility</u> For the participants in the study, please state • Number of researcher positions created in the study • Number of participants making an upward move in career trajectory as a result of the project, both when joining the project and leaving. If there are no entries under categories 1-3 included, it will be presumed that none were established during the project.

B. Mandatory Additional Questions

The use of Mandatory Additional Questions (MAQs) varies by each UKRI council and so some of the individual MAQs listed below may not be included against your award. You are still able to provide the information against individual outcome types included in the Common Question Set (see Section A). In addition, you may also enter relevant information against the 'Other Outputs and Knowledge / Future Steps' section of the Common Question Set.

Section	Guidance
Key Findings	No additional guidance for SWIMMR awards.
Narrative Impact	Please include any new buildings, major infrastructure or equipment that has been installed or built as a result of SWIMMR.
Secondments	Please describe any secondments that have involved people moving temporarily into the SWIMMR programme or that have arisen from being involved in the SWIMMR programme. Please include the institutions involved, the direction of secondment (i.e., to/from SWIMMR), the time frame and any outcomes or impacts that have arisen from this.