



Call for innovations in Arctic Earth System Science

SIOS and SSF seek proposals to develop an innovative technology or method to improve observation capability or decrease the environmental footprint of research and monitoring in the field of Earth System Science in Svalbard.

Proposal submission opens **2 June 2021**

Deadline to submit a proposal is **10 September 2021**

The award amount is **300 000 NOK**

Background

The Svalbard Integrated Arctic Earth Observing System ([SIOS](#)) is a regional observing system for long-term measurements in and around Svalbard, Norway, addressing Earth System Science (ESS) questions related to Global Change. The observing system builds on the extensive and diverse world class research infrastructure already established in Svalbard by institutions from many nations. This includes a substantial capability for utilising remote sensing resources to complement ground-based observations. SIOS currently has 26 members from 9 countries who collaborate to develop the observing system and share infrastructure, data and knowledge.

Svalbard Science Forum ([SSF](#)) provides information about infrastructure and activities and by facilitates coordination, collaboration and data sharing between researchers in Svalbard. The overall objective of SSF is to contribute to increased scientific quality in research in Svalbard and serve as a coordinating and advisory body for all key players in research activities in Svalbard. SSF is coordinated by the Research Council of Norway, which also employs the staff of the SSF secretariat. The offices of the SSF secretariat are located in Longyearbyen.

SIOS is offering an award for the best innovative proposal submitted by the deadline, in cooperation with SSF.

Who can apply?

Eligibility criteria

The following eligibility criteria must be met:

- Proposals must be related to the core scientific priorities of SIOS to support long-term ESS observations in Svalbard (<https://sios-svalbard.org/ObservingSystem>).
- Applicants must be able to adhere to the SIOS data policy (www.sios-svalbard.org/Documents).
- Students and early career researchers (ECR) are encouraged to apply. SIOS is offering mentorship to applicants with limited prior experience (see appendix 3).

Evaluation criteria

Submitted proposals will be evaluated according to the criteria outlined in appendix 1. The following aspects are emphasised:

- Innovation, technical feasibility, and scientific quality.
- Contribution to optimising the observing system and advancement in Arctic Earth System Science.



- Competence of the project team, especially the principal investigator or their mentor.

Details of the call

The purpose of the call is to provide seed money to kick start an innovation. The funding will support development of a new technology, methodology or new way of using products and data within Svalbard science and infrastructure operations.

Some suggestions for topics that could be addressed include:

- remote / autonomous platforms
- reduction in power consumption for remote stations
- better technical solutions for communication with instruments in remote locations
- new measurements that can replace fieldwork that currently has a high environmental impact
- pilots for citizen science/community-based observation to support ESS monitoring
- cooperation with a manufacturer to further develop an existing technology
- specifically addressing a recommendation from the [State of Environmental Science in Svalbard \(SESS\)](#) report

Applicants should however not feel limited by these suggestions, as all innovations to support Svalbard research will be considered. High risk proposals are encouraged to apply.

One project will be selected among the submitted applications to receive the award. The awarded funding will be used to develop a “proof of concept” (e.g. a prototype, design or first version of a product, pilot).

Application procedure

Proposals must be submitted electronically at https://sios-svalbard.org/InnovationAward_ApplicationForm. A project description (not exceeding 5 pages), a budget and CVs of all partners must be attached. Refer to appendix 2 for information on the administrative procedures.

The project description must include:

- A detailed description of the proposed product / prototype / method.
- A proposed timeline for your project.
- Technological readiness level – the award is not limited to any particular level but you must indicate what level you are aiming for.
- Relevance to SIOS, i.e., how your proposal contributes to long-term ESS research and monitoring.

The deadline to submit a proposal is **10 September 2021**. The proposal that has won the award will be announced at the [Svalbard Science Conference](#) in November 2021.

Contact details

For further guidance, contact the SIOS access and logistics officer <https://sios-svalbard.org/Staff#LogisticsOfficer>.



Appendix 1: Assessment criteria¹

Applications to the innovation award will be assessed based on the following criteria:

Excellence

To what extent does the project represent an ambitious innovation that will support high quality Arctic Earth System Science?

- To what extent does the innovation represent something new?
- To what extent is the innovation targeted towards clear needs or new market opportunities for the Project Owner and the companies that are partners in the project?
- To what extent does the project build on relevant and updated knowledge?
- To what extent does the project employ relevant and recognised R&D methods?

Impact

To what extent does the project pave the way for significant benefits for the Project Owner, project partners, and SIOS members, and lay a foundation for other positive impacts for society?

- To what extent will the project entail a potential for sustainable value creation for SIOS members and other polar researchers?
- To what extent can the project have positive external impacts, such as:
 - improving Earth System Science research or monitoring, or providing a substantial environmental benefit compared to the currently available methods / technologies;
 - helping to disseminate knowledge through networks and publications;
 - producing results that can be used by other industries, the public sector or in society at large;
 - leading to an innovation that can address UN Sustainable Development Goals or solve other important societal challenges.
- To what extent are the potential impacts of the project clearly formulated and highly plausible?

Implementation

To what extent does the work plan provide a good basis for implementing the R&D activities and realising the potential for value creation?

- To what extent will the project have access to the necessary R&D expertise and adequate capacity to carry out the R&D tasks?
- To what extent does the project manager have appropriate expertise and experience to lead an R&D project targeted towards innovation, or have a mentor with such expertise? Is the relevant competence demonstrated in the project description and attached CVs of the project team?

¹ Assessment criteria modified from the Research Council of Norway:
<https://www.forskningsradet.no/en/call-for-proposals/2021/innovation-project-for-the-industrial-sector/#AssessmentCriteriaTitle>



- To what extent is the proposed timeline for the project realistic, and will it deliver results within a reasonable time?
- To what extent is the plan for implementation of R&D results and realisation of benefits relevant and appropriate, for instance regarding:
 - Intellectual Property Rights issues,
 - assessment of the competitive framework and market risks,
 - investment needs and plans,
 - needs and plans regarding partnerships for commercialisation or industrialisation,
 - need to develop business models.

Relevance to the call and to SIOS

To what extent does the project meet the requirements and guidelines set out in the call for proposals?

- To what extent does the proposal contribute to the core priorities of this call (innovative, useful to science and society)?
- To what extent is the proposal relevant to supporting the development of an observing system for Earth System Science in Svalbard, in line with the goals of SIOS? See <https://sios-svalbard.org/ObservingSystem> for information about the scientific priorities of SIOS.

Evaluation process:

The proposal will be scored on a scale from 1-4 for the criteria outlined above. The scores will then be added together to create a ranking of the proposals. The final decision on the winning proposal will be made by the SIOS Board of Directors.

Scores will be allocated according to the following definitions:

| | |
|------------------|--|
| 4 = Excellent | The proposal meets the requirements in an exemplary manner, is internationally leading and can be expected to lead to ground-breaking results. |
| 3 = Good | The proposal meets the requirements to a high level, is internationally competitive and should lead to significant results. Shortcomings, if any, are minor. |
| 2 = Acceptable | The proposal meets most requirements to a satisfactory standard. Relevant results are expected. Moderate shortcomings. |
| 1 = Unacceptable | The requirements are not met to a satisfactory standard. Major shortcomings. Not fundable. |



Appendix 2: Administrative procedure

SIOS Knowledge Centre (SIOS-KC) oversees the administrative procedures in relation to the Innovation Award.

The evaluation panel will consist of member of the Science Optimisation Advisory Group (SOAG), Research Infrastructure Coordination Committee (RICC), Svalbard Science Forum (SSF) and SIOS-KC. Representatives from industry with competence on innovation will also be invited to take part in the panel. The panel must perform their work impartially and take all measures to prevent any situation that could cast a doubt on their impartiality. The evaluation must not be influenced by economic interest, political or national affinity, family or emotional ties or any other shared interest ('conflict of interests'). Panel members with a conflict of interest are excluded from the evaluation. SIOS is committed to equity, diversity, and inclusion and will ensure a fair and non-discriminatory selection process.

The recipient of the award will need to sign a contract with SIOS which will stipulate terms such as the criteria for reporting to SIOS. Payment of the award amount will be made up front to the recipient. The payment is subject to fulfilling the criteria in the contract with SIOS by the agreed upon deadline. Failure to comply with the contract may result in SIOS seeking reimbursement of the awarded funds.

The application must be submitted using the webform on the SIOS website (https://sios-svalbard.org/InnovationAward_ApplicationForm). There are three mandatory attachments that must be uploaded with your application: a project description, budget and CV of all named applicants. The project description should follow the template in appendix 4.

Applications submitted to the Innovation Award, including any related information, data, and documents received by SIOS-KC, will be treated confidentially. An obligation of confidentiality also binds the evaluators. Applicants retain full and exclusive ownership of their prior information and intellectual property rights. The recipient of the award undertakes to ensure the confidentiality of the ideas and projects presented and developed throughout the project period. The award recipient is responsible for being the owner of the idea and, if applicable, being entitled to intellectual property rights of their respective innovations developed through the project. Infringements of intellectual property rights are the sole responsibility of the participants.

If the project plans to collect Earth System Science data that are relevant to the SIOS community these data should be shared via the SIOS Data Management System according to the [SIOS data policy](#). Refer to the [Guidelines for Data Sharing](#) for further information.



Appendix 3: Mentoring scheme

SIOS member institutions may provide mentors to help inexperienced applicants to the SIOS Innovation Award to develop a high-quality proposal and deliver a good product. The mentors will be experienced researchers with backgrounds in various Earth System Science related fields and a good understanding of the current technological challenges and limitations within them. Prospective applicants to the innovation award may request to be matched with a mentor by approaching SIOS Knowledge Centre. Please send an email to Inger Jennings on logistics@sios-svalbard.org as soon as possible, and no later than 30th June, if you would like to be matched with a mentor.



Appendix 4: Template for project proposal

Introduction

Short introduction to the scientific background to the proposal and the problem that your innovation is aiming to solve.

Project description

Description of the proposed innovation: what is it, what is the current state of the art, and how is this idea innovative? Focus on describing the problem to be addressed and how it will be solved with the proposed innovation, and how this will benefit science, industry and society.

Project team

List the project team and the contributions of each to the proposed project.

Relevance to SIOS

Describe the relevance of the proposed project to SIOS. How can it be used by SIOS members? How does it contribute to developing an observing system for Earth system science in Svalbard? Which SIOS goal or recommendation from a SESS report does it address? How does it benefit SIOS in the long term?

Technological readiness level

State the technological readiness level the proposed project is aiming for, according to the EC definitions: <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/faq/2890>. The award is not limited to any particular level, but you must indicate what you are aiming for and why.

Timeline

Propose timeline for your project, including major milestones and a date for delivering project results. This will be used by SIOS to set a deadline for delivery in your contract in the event you are the award recipient.