Arctic Doctoral Dissertation Research Improvement Grants (Arctic DDRIG) Arctic Social Sciences, Arctic System Sciences, and Arctic Observing Network (DDRIG)

PROGRAM SOLICITATION
NSF 20-597

National Science Foundation

Directorate for Geosciences
Office of Polar Programs

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):

December 18, 2020

May 17, 2021

May 15, Annually Thereafter

December 15, 2021

December 15, Annually Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

Innovating and migrating proposal preparation and submission capabilities from FastLane to Research.gov is part of the ongoing NSF information technology modernization efforts, as described in Important Notice No. 147. In support of these efforts, full research proposals submitted in response to this program solicitation must be prepared and submitted via Research.gov. Proposals also may continue to be submitted via use of Grants.gov.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 22-1), which is effective for proposals submitted, or due, on or after October 4, 2021.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Arctic Doctoral Dissertation Research Improvement Grants (Arctic DDRIG) Arctic Social Sciences, Arctic System Sciences, and Arctic Observing Network (DDRIG)

Synopsis of Program:

The National Science Foundation (NSF) invites investigators at U.S. organizations to submit proposals for Doctoral Dissertation Research Improvement Grants (DDRIGs) to the Arctic Sciences Section, Office of Polar Programs (OPP) to conduct dissertation-level research about and related to the Arctic region. The Programs that are currently accepting DDRIG proposals are the Arctic Social Sciences (ASSP), Arctic System Science (ARCSS), and Arctic Observing Network (AON) Programs.

The goal of this solicitation is to attract research proposals that advance a fundamental, process, and systems-level understanding of the Arctic's rapidly changing natural environment and social and cultural systems, and, where appropriate, to improve our capacity to project future change. The Arctic Sciences Section supports research focused on the Arctic region and its connectivity with lower latitudes. The scientific scope is aligned with, but not limited to, research challenges outlined in the Interagency Arctic Research Policy Committee's five-year Arctic research plan (https://www.nsf.gov/geo/opp/arctic/iarpc/start.jsp). Given that this solicitation is designed to support early career scientists, this Program will also advance research capacity in Arctic sciences, promote workforce development, and enhance diversity and inclusion in Science, Technology, Engineering, and Math (STEM).

The Arctic Sciences Section coordinates with programs across NSF and with other federal and international partners to co-review and co-fund Arctic proposals as appropriate. The Arctic Sciences Section also maintains Arctic logistical infrastructure and field support capabilities that are available to enable research.

Cognizant Program Officer(s):

- Roberto Delgado, Program Director, Arctic Observing Network, W7246, telephone: (703) 292-2397, email: robdelga@nsf.gov

- Erica Hill, Program Director, Arctic Social Sciences, W7176, telephone: (703) 292-4521, email: erhill@nsf.gov

- Colleen Strawhacker, Program Director, Arctic System Sciences, W7137, telephone: (703) 292-7432, email: colstraw@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.050 --- Geosciences

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 25

Anticipated Funding Amount: $1,250,000

Anticipated Funding Amount is $1,250,000 per year approximately pending availability of funds. Project budgets should be developed at scales appropriate for the work to be conducted. The total direct costs for Arctic DDRIG awards may not exceed $40,000; indirect costs are in addition to this maximum direct cost limitation and are subject to the awardee's current Federally negotiated indirect cost rate.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.

Who May Serve as PI:

The proposal must be submitted through regular organizational channels by the dissertation advisor(s) on behalf of the graduate student. The advisor is the Principal Investigator (PI); the student is the Co-Principal Investigator (Co-PI). The student must be the primary author of the proposal with mentorship from the advisor (PI). The student must be enrolled at a U.S. institution of higher education.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or co-PI:

There are no limitations on the number of DDRIGs that may be submitted by an organization on behalf of a single faculty member during a specific competition or over the course of her/his career. But an organization may submit only two proposals (an original submission and if necessary, a resubmission) for any given student over their career, barring special dispensation from the Arctic Sciences Section for a second resubmission. Such dispensations are rare; they are exclusively at the discretion of the Arctic Program Officer(s).

A student and her/his advisor therefore should carefully consider at what point during the student's graduate program the student is ready to submit a DDRIG proposal keeping in mind that proposal processing normally takes approximately six months.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not required

- **Preliminary Proposal Submission:** Not required

- **Full Proposals:**

  - Full Proposals submitted via Research.gov: *NSF Proposal and Award Policies and Procedures Guide* (PAPPG) guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.
  - Full Proposals submitted via Grants.gov: *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov* guidelines apply (Note: The *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide).

B. Budgetary Information

- **Cost Sharing Requirements:**

  Inclusion of voluntary committed cost sharing is prohibited.

- **Indirect Cost (F&A) Limitations:**

  Not Applicable

- **Other Budgetary Limitations:**

  Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):

  December 18, 2020

  May 17, 2021

  May 15, Annually Thereafter

  December 15, 2021

  December 15, Annually Thereafter

Proposal Review Information Criteria

Merit Review Criteria:

National Science Board approved criteria. Additional merit review criteria apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions:

Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements:

Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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I. INTRODUCTION

The Arctic Sciences Section (ARC) in the Office of Polar Programs (OPP) funds scientific research about the Arctic region and provides operational support for Arctic research activities. Science programs provide support for disciplinary, interdisciplinary, and convergence investigations directed at understanding the Arctic region and its connectivity with lower latitudes.

A geographic definition of the Arctic region is provided by the United States Arctic Research and Policy Act (ARPA) of 1984 Section 112 (https://www.nsf.gov/od/opp/arctic/iarpc/arc_res_pol_act.jsp). Because this solicitation includes research on phenomena that link the Arctic to lower latitudes, the ARPA definition should not be viewed as strictly constraining the location of the work proposed. Proposals conducting research outside the Arctic geographic region should contain a clear statement of how the proposed research will increase our knowledge of the Arctic.

II. PROGRAM DESCRIPTION

The Arctic Sciences Section solicits proposals for dissertation-level research to enhance our understanding of the Arctic, from advancing fundamental disciplinary understanding of important Arctic processes, to complex interdisciplinary studies of couplings among social, biological, physical, and geochemical components of the Arctic system and the changing connections between the Arctic and lower latitudes. Of special interest is research focused on understanding processes relevant to social and environmental change. All proposals should discuss explicitly how their results would contribute to increasing our understanding of the Arctic region or its interaction with global systems.

Doctoral Dissertation Research is supported within the Arctic Section by the following programs:

Arctic Social Science:

The **Arctic Social Sciences Program (ASSP)** supports research on Arctic social and cultural systems, present and past, and research relevant to understanding these systems. ASSP welcomes research proposals in all social science disciplines that are funded by the NSF Directorate of Social, Behavioral and Economic Sciences. Topics of particular interest are outlined in the final report for the *Arctic Horizons* process (arctichorizons.org/final-report). These community recommended research priorities include:

- Past and present drivers of change in the Arctic, including resource, cultural, climate, and economic changes
- Convergent research on socioecological systems
- Demographics of past and present migration
- Community and social health
- Food, water, and energy security
- Youth and gender studies
- Sustainability and sustainable development
- Globalization
- Urban and rural systems
- Innovations in data curation, management, sharing, discoverability, and access, including those contributing to synthesis science

The Arctic Social Sciences Program especially encourages projects that are circumpolar and/or comparative; involve collaborations between researchers and those living in the Arctic; or form partnerships among disciplines, regions, researchers, communities, and/or students (K-12, undergraduate, or graduate). The program has a special interest in a wide range of Indigenous scholarship, including Indigenous science and knowledge systems; community participatory-based research models and knowledge co-production; Indigenous conceived and led research projects; and more.

Arctic System Science:

The Arctic System Science Program supports projects that study systems of the Arctic operating at multiple temporal and spatial scales, systems that can inform our understanding of Arctic processes, and the relationship of Arctic systems to other global and regional systems. For ARCSS, the "Arctic system" is defined very broadly to encourage creative proposals. PIs should ask themselves if their work addresses interactions among several components of the Arctic system, explores emergent behavior in linked subsystems, or otherwise provides essential knowledge, and they should apply that knowledge to system-level understanding.

ARCSS projects are often but not always interdisciplinary and can focus on the relationships among physical, chemical, biological, geological, ecological, social, cultural, and/or economic processes. ARCSS welcomes proposals focusing on the cycles of carbon, water, and energy in the functioning of Arctic systems, as well as the relationship of these cycles to human and social processes occurring in the Arctic. ARCSS also accepts proposals that contribute to better understanding of the interactions and feedbacks between humans and the environment. Theoretical and methodological approaches can include (but are not limited to) political ecology, historical ecology, human ecodynamics, food security, resilience theory, Indigenous and local knowledge, socioecological systems, coupled natural human systems, risk and vulnerability studies, ecosystem services, and sustainability studies. ARCSS also encourages projects aimed at creating new knowledge through synthesis of published science, reports and previously collected data to better understand the Arctic system at multiple scales.

Arctic Observing Network

The goal of the Arctic Observing Network (AON) program is to support integrated and sustained long-term measurements of Arctic system characteristics to address hypotheses about mechanisms underlying Arctic environmental system change and its global connections through observation and analysis. These projects should address major drivers and/or impacts of system change and generate data that are intended for wider use by the scientific research community in understanding the changing Arctic system. AON supports scientific observations and Indigenous Knowledge of biodiversity, ecosystems, human societies, land, ice, marine and freshwater systems, and the atmosphere as well as their social, natural, and/or physical environments. The AON Program will also consider proposals for: (1) development of *in situ* or remote sensors and autonomous systems that directly enhance AON observations, (2) design and optimization of coordinated and scalable observing networks, and (3) management of AON data, data access, and data discovery. AON projects should contribute to Arctic system modeling and should leverage other existing national (e.g., US Arctic Observing Network) and international observing efforts (e.g., Sustained Arctic Observing Networks - https://www.arcticobserving.org/).

Proposals that involve process study, model developments, or short-term deployments may be suited to other NSF Arctic programs. Prospective project teams should contact the Program Director to discuss the project and determine if it is within AON Program scope. All AON projects must conform to the Office of Polar Programs Data Policy. AON data are considered community data and not subject to any embargo period. Rapid release of data via a national data center is a requirement for AON projects. There are exceptions for social sciences data, data involving Indigenous or local knowledge, and cases where data release might cause harm. Proposals must include a data and information management plan that describes how free and rapid access to quality-controlled and fully-

documented data and information will be achieved during the course of the award. Proposers should be aware that posting figures and tables on a website is not sufficient. The plan must include transfer of all data to a recognized data repository by the conclusion of the award.

When possible, the Report on the Goals and Objectives for Arctic Research - https://www.arctic.gov/goals-and-objectives/ - of the US Arctic Research Commission, and the Arctic Research Plan - https://www.iarpccollaborations.org/plan/index.html - of the Interagency Arctic Research Policy Committee (IARPC) should be referenced, as appropriate, for alignment with national research objectives and performance elements related to Arctic observations. For proposals involving knowledge co-production and/or local community engagement, prospective PIs are strongly encouraged to put into practice and document that they have made efforts to follow the IARPC Principles for Conducting Research in the Arctic - https://www.nsf.gov/geo/opp/arctic/conduct.jsp.

DDRIG Specific Information

Doctoral Dissertation Research Improvement Grants (DDRIG) provide support to enhance and improve the conduct of doctoral dissertation projects conducted by doctoral students enrolled in U.S. IHEs who are conducting scientific research that enhances basic scientific knowledge.

Although most grants are for a shorter time period, DDRIG awards may be up to three years in duration. The dissertation does not have to be completed during that time period, but costs associated with research activities to be reimbursed with DDRIG funds must be incurred while the award is active.

III. AWARD INFORMATION

Pending availability of funds, $1,250,000 may be available for proposals to this solicitation. This amount does not include logistics support that may be provided through the Arctic Research Support and Logistics program. NSF estimates 25 awards per year as standard or continuing grants. The number of awards and average award size and duration are subject to the availability of funds.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

> Proposals may only be submitted by the following:

> - Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.

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Limit on Number of Proposals per Organization:

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> A student and her/his advisor therefore should carefully consider at what point during the student's graduate program the student is ready to submit a DDRIG proposal keeping in mind that proposal processing normally takes approximately six months.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Research.gov or Grants.gov.

- Full Proposals submitted via Research.gov: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal and Award Policies and Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg. Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov. The Prepare New Proposal

setup will prompt you for the program solicitation number.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov*. The complete text of the *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: (https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov.

See PAPPG Chapter II.C.2 for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the PAPPG instructions.

Proposals may be returned without review for failing to comply with the PAPPG or NSF Grants.gov Application Guide, this solicitation, or the instructions that supplement the PAPPG and NSF Grants.gov Application Guide.

For the following listed items/sections of the proposal, instructions specific to DDRIG proposals under this solicitation are presented:

1. **Cover Sheet**
   - Begin the Project Title with, "Doctoral Dissertation Research:", followed by a substantive subtitle, which should describe the project in concise, informative language so that a scientifically or technically literate reader could understand what the project is about.
   - Select the specific number of this Arctic DDRIG solicitation in the section labeled Program Announcement/Solicitation.
   - Include the NSF Unit of Consideration information.
   - List the primary dissertation advisor as the PI and list the doctoral student (and other advisors, only if highly appropriate to the conduct of the research) as Co-PI(s) in the Remainder of the Cover Sheet section.
2. **Project Description**

   The Arctic Sciences Section limits the Project description to 10 single-spaced pages of text plus an additional five pages of figures. One may decrease the number of text pages to increase figure pages but not the reverse. The "Results from Prior Support" section is not required. Otherwise, proposers should follow the PAPPG for other general proposal preparation guidelines.

   As specified in Chapter II, Section C.2.d of the PAPPG and in the comparable section of the NSF Grants.gov Application Guide, the project description should be a clear statement of the work to be undertaken.

   To be competitive for funding from the Arctic Sciences Section, the project description should provide clear descriptions of relevant literature and theoretical frameworks within which the project is set, a complete description of the research methods that will be used, and discussion of the expected intellectual merit and broader impacts that may result from the project.

3. **Biographical Sketches**

   Biographical Sketches must be included for both the student and the dissertation advisor(s) and conform to the PAPPG specifications. In addition, the biographical sketch for the student should include a statement about the student's current academic status and degree progress; a separate letter concerning the student's academic status is not required. Do not submit transcripts or letters of reference.

4. **Other Supplementary Docs**

   Letters of Collaboration

   If the research project includes a significant component requiring the involvement of another organization, commitment of a laboratory, foreign government or other individual, it is recommended that the proposal include a letter (or letters) of collaboration in the Supplementary Documents section. The content of the letter(s) should be limited to a brief description of the committed facilities or resources. Letters of recommendation are not allowed. The Program recognizes that permits to conduct research in non-US countries are often not issued until funding has been secured. Research projects must comply with all relevant US law and regulations.

   Letters of Collaboration (either written as letters or as free-standing e-mail messages) from individuals and/or organizations that will work with the doctoral student and/or provide in-kind support for the proposed project may be included as supplementary documents. Such letters are not needed from other individuals at the student's institution.

   Letters of collaboration should be brief and focus on the willingness of the letter's author to collaborate or provide in-kind support for the project in ways that have been outlined in the project description. Such letters should not argue for support of the project by articulating in greater detail what activities the collaborator will undertake and/or by elaborating reasons for supporting the project. Proposers will be required to remove inappropriate letters before their proposal is sent to reviewers.

   The recommended format for letters of collaboration is as follows:

   "If the proposal for a Doctoral Dissertation Research Improvement Grant supporting the dissertation work of [insert full name of student] submitted by Dr. [insert the full name of the Principal Investigator] entitled [insert the proposal title] is selected for funding by NSF, it is my intent to collaborate and/or commit resources as detailed in the Project Description or the Facilities, Equipment and Other Resources section of the proposal."

   Signed Statement from the Principal Investigator

   The advisor or other faculty member serving as the principal investigator (PI) of the proposal is now required to submit a signed statement affirming that the student will be able to undertake the proposed research soon after a DDRIG award is made. In addition, the PI must affirm that she/he has read the proposal. The following template must be used to prepare this statement, with changes permitted only to provide information where there are blank lines in the template. Additional text is not permitted. The statement must be signed by the PI.

   Required template for a statement signed by the PI:

   To: NSF Arctic Sciences Section

From:_____
[Insert name of the PI]

By signing below, I affirm that the doctoral student is at a stage in her/his graduate program that makes it very likely that the student will be able to undertake the dissertation research described in this proposal soon after a DDRIG award is made.

I affirm the student is the primary author of the proposal, that I have read this proposal, and I believe that this proposal is appropriate for NSF submission.

Signed: _____
[Insert PI's signature]

IHE: _____
[Insert name of IHE]

Date:_____
[Insert date that the statement is signed by the PI]

Permit Related Documents

Dissertation research in Arctic science often requires permits to conduct field research or to access materials. Related documentation may be included as supplementary documents.

Please note: Letters of recommendation, transcripts, and other such material may not be included as supplementary documents.

5. **Data Management Plan**

All proposals must include as a supplementary document a plan for data management and sharing the products of research. The data management plan to be submitted with a proposal must be no longer than two (2) pages in length.

This supplementary document should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results. For more information about this requirement, please see the PAPPG, Chapter II.C.2.j and the Data Management and Sharing Frequently Asked Questions (FAQs). **Please note:** The Office of Polar Programs has additional guidance for proposals submitted to ASSP and AON programs, please see **Dear Colleague Letter: Data Management and Data Reporting Requirements for Research Awards Supported by the Office of Polar Programs**.

Note that the Dear Colleague Letter above requires, at a minimum, "Metadata for all Arctic supported data sets must be submitted to the NSF Arctic Data Center (https://arcticdata.io)." Questions should be addressed to one of the Program Officers listed above via e-mail.

Revised Proposals

Revised proposals must include a brief description of how the resubmitted proposal has been revised in response to reviewer and/or panel comments as part of the body of the Project Description section of the proposal.

Principles for the Conduct of Research in the Arctic

Investigators are strongly encouraged to put into practice and document that they have made efforts to follow the Principles for Conducting Research in the Arctic, prepared by the Social Science Task Force of the U.S. Interagency Arctic Research Policy Committee (IARPC), approved by IARPC in 1990, and revised in 2018. These Principles are listed at https://www.nsf.gov/geo/opp/arctic/conduct.jsp. Investigators may find useful the Guidelines for Improved Cooperation between Arctic Researchers and Northern Communities (https://www.arcus.org/resources/northern-communities).

Proposals Involving Human Subjects

Projects involving research with human subjects must ensure that subjects are protected from research risks in conformance with the relevant federal policy known as the Common Rule (*Federal Policy for the Protection of Human Subjects*, 45 CFR 690). All projects involving human subjects must either (1) have approval from the organization's Institutional Review Board (IRB) before issuance of an NSF award or, (2) must affirm that the IRB or an appropriate knowledgeable authority previously designated by the organization (not the Principal Investigator) has declared the research exempt from IRB review. The box for "Human Subjects" must be checked on the Cover Sheet with the IRB approval date (if available). If IRB approval has not been obtained before submission, the proposer should indicate "Pending" in the space provided for the approval date. Advice is available at https://www.nsf.gov/bfa/dias/policy/guidance.jsp#human. If letters of permission or approval are included, such as those from Native organizations or communities in which the work will take place, please include them as supplementary documents.

Proposals Involving Arctic Fieldwork or Ship Time

The Arctic Research Support and Logistics (RSL) program provides support for the fieldwork of projects awarded by the Arctic Sciences Section and may support other projects on a reimbursable basis. The RSL program supports a prime logistics contract, the Arctic Research Support and Logistics Services contract, currently operated by Battelle Arctic. The RSL program also funds ship time, ice core drilling support, infrastructure support for monitoring networks, and related support for field projects. The RSL program can fund many of these third-party research support and logistics service providers directly or funds can be requested through the proposal budget. Investigators may decide how best to arrange for the logistics costs and may reach out to the RSL program managers or the cognizant science program officer to discuss these arrangements.

Proposals involving fieldwork in the Arctic must 1) describe the field activities in the body of the proposal, including a schedule of proposed work, and 2) describe the costs of the fieldwork either in the proposal budget or in Supplementary Documents. The total cost of a project including fieldwork is considered at the time of review. Any science support provided by third-party organizations must be described in a 1-2 page Supplementary Document that outlines the scope of support and a cost estimate. Please allow service providers 4-6 weeks to prepare Supplementary Documents to include in proposals and initiate the request far in advance of proposal submission. For any instrument or infrastructure deployed to the field, investigators should include the scope and cost for the demobilization or other disposal of the property.

Proposals requesting support for fieldwork should expect to go to the field no sooner than 12 months after proposal submission, or 18 months for proposals including ship time requests, to allow time to plan, budget, and complete environmental compliance documentation. Per the NSF PAPPG, awardees are responsible for acquiring and complying with all permits necessary for their work and are responsible for all activities conducted under the award. NSF is not

responsible for costs associated with medical evacuations or other interruptions to scheduled fieldwork and reserves the right seek reimbursement for costs incurred for search, rescue, or medical evacuation. Proposers should ensure all members of the field team are covered by institutional medical evacuation insurance or request funds to purchase medical evacuation insurance, which is an allowable grant cost. All Investigators should have a risk management plan for their fieldwork including a plan for emergencies. The ARSLS contractor can help Investigators develop these plans and offers training relevant to fieldwork.

NSF's prime contractor for Arctic field research support is currently Battelle Arctic. For assistance from Battelle Arctic in planning field support, email arctic.planning@battelle.org. The Battelle Arctic website (https://battellearcticgateway.org/for-researchers) provides more information on services available for researchers. Frequently used field support and service organizations are listed below. Investigators should reach out to these providers directly when preparing their proposals and request a scope and cost document for the Supplementary Documents if the support has an incremental cost.

- UNAVCO for geodesy
- Incorporated Research Institutions for Seismology (IRIS) for geophysical studies
- Ice Drilling Program (IDP) for ice core drilling and drill development
- Ice Core Facility (ICF) for ice core archival and sample requests
- Polar Geospatial Center (PGC) for satellite imagery – researchers working on glaciers or the Greenland Ice Sheet are encouraged to notify PGC early in the planning process of potential imagery needs and request imagery from PGC as soon as an award is received.
- Toolik Field Station (TFS) for access to this field station

Proposals requesting ship time on U.S. Coast Guard (USCG; http://icefloe.net) or University-National Oceanographic Laboratory System (UNOLS; https://www.unols.org) vessels should complete a UNOLS Ship Time Request (https://strs.unols.org) and include it as Supplementary Documentation. Refer to guidance on requesting ship time here: https://www.nsf.gov/news/news_summ.jsp?cntn_id=191729&org=OCE. Please contact the ship operator for more information during proposal development. Other international and regional class vessels are available and can be arranged by Battelle. If requesting ship time on foreign research vessels, please contact Frank Rack at frack@nsf.gov to coordinate with NSF; proposals involving foreign research vessels should have Supplementary Documentation describing the scope and cost and outline the partnership arrangement with points of contact.

For work in Greenland, follow the process laid out by the Government of Greenland (http://naalakkersuisut.gl/en/About-government-of-greenland/Travel-activities-in-remote-parts-of-Greenland). In response to the requirement that researchers in remote parts of Greenland carry DKK 1,000,000 in Search and Rescue (SAR) insurance payable to the Danish State (http://naalakkersuisut.gl/en/About-government-of-greenland/Travel-activities-in-remote-parts-of-Greenland/Procedure-and-forms), NSF made an agreement with the Government of Greenland for Search and Rescue costs as a self-insured government agency. NSF provides the names of each traveler under the auspices of NSF to the Government of Greenland. NSF would coordinate SAR activities with the Government of Greenland and reserves the right to seek reimbursement for costs incurred. For work based out of Thule Air Base, please coordinate with Battelle Arctic and please reach out to Jennifer Mercer at jmercer@nsf.gov to coordinate with NSF.

Coordination and Collaborations with Arctic Communities

Given the deep knowledge held by local and Indigenous residents in the Arctic, NSF encourages scientists and Arctic residents to collaborate on Arctic research projects. NSF recognizes that these collaborations will take a variety of forms based on the nature of the scientific projects, needs of community members and organizations, and the intensity of planned collaboration. The following outlines and defines some (but not all) forms of engagement:

Research Sites Near Arctic Residents. Proposers preparing projects working near, or impacting, Arctic communities are strongly encouraged to discuss the proposed work with those communities while developing the project concept. In accordance with the Interagency Arctic Research Policy Committee (IARPC) *Principles for Conducting Research in the Arctic*, researchers should coordinate their field activities with nearby communities and are expected to share results with the community following each field season and/or at the end of the project. Investigators should include travel funds for this in their proposal budget. Some projects may require consultation with Tribal or subsistence co-management organizations. Time for consultation should be included in the project schedule and travel and salary funds for these consultations should be included in the proposal budget. The Arctic Research Support and Logistics (RSL) program may also support requests to visit communities and support communication with local communities. Please contact the RSL Program Officers for information about these opportunities.

Community engagement and outreach are important components of both integrative research and research capacity-building. Here, community engagement refers to substantive interaction with community partner organizations and anchor institutions such as governments, federal and state agencies, schools, libraries, health and social service providers, Tribal and Indigenous-serving organizations, non-profits, cultural organizations, and businesses. In accordance with the IARPC *Principles for Conducting Research in the Arctic*, investigators and community partners are encouraged to work closely to develop and evaluate creative approaches to achieving meaningful engagement for mutual benefit. Co-production of knowledge does not fall under this category for the purposes of this solicitation.

Co-production of Knowledge. Knowledge co-production with Arctic Indigenous communities is encouraged only when appropriate and must be strongly justified and supported in the proposal text and project budget. NSF identifies co-production of knowledge as the integration of different knowledge systems and methodologies to systematically understand the phenomena, systems, and processes being studied in a research project. In the Arctic, this often takes the form of Indigenous Knowledge holders and scientists working closely together to address shared research questions, pursue shared methodologies, and agree upon appropriate outreach and data sharing activities. In Greenland, it may also mean working closely with the local Greenlandic science research community. A co-produced approach includes research in which local and Indigenous peoples and organizations fully engage in the complete research process from the development of research questions, to the collection, use and stewardship of data, and interpretation and application of results. Given the diversity of peoples, worldviews, ideas, approaches, and methodologies in the Arctic, the co-production of knowledge in Arctic projects will take various forms. If intending to pursue knowledge co-production, community engagement must begin well in advance of proposal submission, and PIs are recommended to put into practice the *Principles for Conducting Research in the Arctic*.

Proposals that include research in communities must attach a letter or email that confirms community collaboration, or at a minimum community awareness, from the relevant community organizations (e.g., Alaska Native corporations or non-profits, tribal councils, municipal governments, and/or school authorities, or Greenlandic research institutes) as a Supplementary Document. Investigators should request sufficient funding to support the time and travel of Arctic community members and treat their collaborators as members of their research team, including acknowledging collaborators in publications and including them as co-authors and in research presentations, as appropriate.

Environmental Policy Considerations of Fieldwork

Federal agencies must comply with the National Environmental Policy Act (NEPA) and other applicable laws and policies such as the Endangered Species Act, the Marine Mammal Protection Act, and the National Historic Preservation Act. Projects will be assessed for environmental impacts prior to award and additional consultations or mitigation efforts may be required. PIs should expect to be involved in the assessment and environmental compliance process for their projects. Investigators may need to travel to communities or meetings as part of the environmental compliance for projects and should request these funds in their proposal. The RSL program may also provide travel funds if needed to ensure that appropriate consultation takes place. Researchers proposing work that may

affect cultural or historic properties, or whose work involves tribal lands, must cooperate with NSF in complying with the consultation requirements of section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act (NAGPRA). For additional information on cultural or historic preservation issues, see the Advisory Council on Historic Preservation's web site at http://www.achp.gov/work106.html; for information concerning NAGPRA see http://www.nps.gov/nagpra/. Contact the Environmental Officer of the Office of Polar Programs, Dr. Polly Penhale (ppenhale@nsf.gov) for guidance on environmental consultations, permitting, and NSF's obligations under existing environmental laws.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

Doctoral Dissertation Research Improvement Grants in the Arctic Sciences Section are limited to $40,000 in direct costs and duration of up to 36 months. Indirect costs are in addition to this maximum direct cost limitation and are subject to the awardee's current Federally negotiated indirect cost rate. Project budgets should be developed at scales appropriate for the work to be conducted and may only include costs directly associated with the conduct of dissertation research. Please allow 6 to 8 months after the target date for an award to be made.

Budget Preparation Instructions:

DDRIG awards provide funding for research costs not normally covered by the student's IHE. Examples of the kinds of expenses that may be included in a DDRIG proposal budget are the following (please note that this list is illustrative and not inclusive):

- Costs associated with travel and related expenses to conduct research at field sites, archives, specialized collections, and/or facilities away from the student's campus.
- Costs for equipment necessary for the conduct of the project that will be devoted to the project over the duration of the award. (Note that any equipment purchased with NSF funds becomes property of the awardee organization.)
- Costs for materials and supplies required for the conduct of the project.
- Costs associated with field work.
- Costs for research assistance if essential to the execution of the study.
- Costs for archiving, preservation and public access to primary data.
- Costs for other research services not otherwise available and essential for the research.
- Costs for travel specific insurance (such as for medical evacuation and repatriation of remains), if appropriately justified.
- Costs for modest (i.e., student-level rather than State Department per diem rates) living expenses for the co-PI during fieldwork in locations away from the IHE or normal place of residence.
- Costs of obtaining a visa required for the research.

Costs that cannot be reimbursed by DDRIG awards include the following:

- A stipend or salary for the doctoral student or advisor. (Note that salaries or payments for work by other individuals whose assistance is essential to the conduct of the project may be permitted when there is sound justification for such expenses.)
- Costs for tuition, textbooks, or other items not directly related to the conduct of dissertation research.
- Publication costs for articles based on the dissertation, except when the university's degree requirements permit the substitution of published research results for a free-standing dissertation
- Costs for travel of the dissertation advisor(s) to the field site and/or professional meetings.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):

    December 18, 2020

    May 17, 2021

    May 15, Annually Thereafter

    December 15, 2021

    December 15, Annually Thereafter

D. Research.gov/Grants.gov Requirements

For Proposals Submitted Via Research.gov:

To prepare and submit a proposal via Research.gov, see detailed technical instructions available at: https://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparationandSubmission.html. For Research.gov user support, call the Research.gov Help Desk at 1-800-673-6188 or e-mail rgov@nsf.gov. The Research.gov Help Desk answers general technical questions related to the use of the Research.gov system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

For Proposals Submitted Via Grants.gov:

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization

can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: https://www.grants.gov/web/grants/applicants.html. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

Proposers that submitted via Research.gov may use Research.gov to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in PAPPG Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: https://www.nsf.gov/bfa/dias/policy/merit_review/.

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Building the Future: Investing in Discovery and Innovation - NSF Strategic Plan for Fiscal Years (FY) 2018 – 2022*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (PAPPG Chapter II.C.2.d(i). contains additional information for use by proposers in development of the Project Description section of the proposal). Reviewers are strongly encouraged to review the criteria, including PAPPG Chapter II.C.2.d(i), prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
   a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
   b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and other underrepresented groups in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

Reviewers will be asked to comment on the veracity of the statement about how research outside the Arctic relates to increasing knowledge about the Arctic.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be completed and submitted by each reviewer and/or panel. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF strives to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new awardees may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

After programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications. After an administrative review has occurred, Grants and Agreements Officers perform the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award notice, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award notice; (4) the applicable award conditions, such as Grant General Conditions (GC-1)*; or Research Terms and Conditions* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award notice. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at https://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

Special Award Conditions:

Principles for Conducting Research in the Arctic

Principal Investigators are strongly encouraged to put into practice and document that they have made efforts to follow the Principles for Conducting Research in the Arctic, prepared by the Social Science Task Force of the U.S. Interagency Arctic Research Policy Committee (IARPC), approved by IARPC in 1990, and revised in 2018. These Principles are listed at https://www.nsf.gov/geo/opp/arctic/conduct.jsp. Investigators may find useful the Guidelines for Improved Cooperation between Arctic Researchers and Northern Communities (https://www.arcus.org/resources/northern-communities).

Data Management Policy

Proposals submitted under this solicitation are required to include a Data Management Plan compliant with the Office of Polar Programs Data management Policy (NSF 16-055; https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf16055). This policy establishes requirements for the archiving of metadata and data in long-lived and publicly accessible, unrestricted archives. Questions concerning this policy should be directed to the cognizant Program Director in the Arctic Sciences Section.

Policies Related to Arctic Fieldwork

Participants in NSF-sponsored Arctic fieldwork are required to comply with the following NSF policies: Code of Conduct, Field Safety Risk Management, Physical Qualifications for Arctic Fieldwork, and IT Security Rules of Behavior. Failure to comply can result in removal from the field or from NSF facilities, retraction of funding, debarment, and referral to law enforcement as appropriate. These policies are available on the Arctic Research Support and Logistics program website (https://www.nsf.gov/geo/opp/arctic/res_log_sup.jsp) and the NSF prime Arctic logistics contractor website (http://cpspolar.com/).

Acknowledgement of Support

Grantees will be required to include appropriate acknowledgment of NSF support under the Arctic Section's Doctoral Dissertation Research Improvement Grant Program in any publication (including URLs) of any material based on or developed under the project, in the following terms:

"This material is based upon work supported by the National Science Foundation Arctic Section Doctoral Dissertation Research Improvement Grant Program under Grant No. (Grantee enters NSF grant number.)"

Grantees also will be required to orally acknowledge NSF support using the language specified above during all news media interviews, including popular media such as radio, television and news magazines.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

Proposals submitted under this solicitation are required to include a Data Management Plan as detailed in Section V.A of this solicitation. Principal Investigators are required to provide updates on the status of metadata and data archival in annual project reports. Compliance with the project Data Management Plan must be documented in the final project report. URL's for archived metadata and data should be included in these reports in the section entitled "Products-Websites." Archiving and execution of the Data Management Plan must be completed prior to the submission of the final project report. Final project report approval is contingent upon successful archiving and execution of the Data Management Plan.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Roberto Delgado, Program Director, Arctic Observing Network, W7246, telephone: (703) 292-2397, email: robdelga@nsf.gov

- Erica Hill, Program Director, Arctic Social Sciences, W7176, telephone: (703) 292-4521, email: erhill@nsf.gov

- Colleen Strawhacker, Program Director, Arctic System Sciences, W7137, telephone: (703) 292-7432, email: colstraw@nsf.gov

For questions related to the use of FastLane or Research.gov, contact:

- FastLane and Research.gov Help Desk: 1-800-673-6188

- FastLane Help Desk e-mail: fastlane@nsf.gov.

- Research.gov Help Desk e-mail: rgov@nsf.gov

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, "NSF Update" is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Grants Conferences. Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on NSF's website.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this mechanism. Further information on Grants.gov may be obtained at https://www.grants.gov.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the *NSF Proposal & Award Policies & Procedures Guide* Chapter II.E.6 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at https://www.nsf.gov

- **Location:**   2415 Eisenhower Avenue, Alexandria, VA 22314

- **For General Information**   (703) 292-5111
  (NSF Information Center)**:**

- **TDD (for the hearing-impaired):**   (703) 292-5090

- **To Order Publications or Forms:**

  Send an e-mail to: nsfpubs@nsf.gov

  or telephone: (703) 292-8134

- **To Locate NSF Employees:**   (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See System of Record Notices, NSF-50, "Principal Investigator/Proposal File and Associated Records," and NSF-51, "Reviewer/Proposal File and Associated Records." Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Policy Office, Division of Institution and Award Support
Office of Budget, Finance, and Award Management
National Science Foundation
Alexandria, VA 22314

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Text Only