Curatorial Stewardship of a National Collection of Geological Rock & Sediment Cores from Antarctica and the Southern Ocean

PROGRAM SOLICITATION
NSF 16-563

National Science Foundation

Directorate for Geosciences
Division of Polar Programs

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

August 03, 2016

IMPORTANT INFORMATION AND REVISION NOTES

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 16-1), which is effective for proposals submitted, or due, on or after January 25, 2016.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Curatorial Stewardship of a National Collection of Geological Rock & Sediment Cores from Antarctica and the Southern Ocean

Synopsis of Program:

The Antarctic Earth Science Program in the Antarctic Sciences Section of the National Science Foundation's (NSF) Division of Polar Programs provides support for the curation and long-term storage of core material collected on the Antarctic continent and its margins. Currently, the Antarctic Marine Geology Research Facility (AMGRF) at Florida State University is fulfilling this role. The AMGRF was established in 1963 and is housed in a single-story, 10,000 sq. ft. building on the Florida State University campus. This facility consists of a 6000 sq. ft. cold room (34 °F), a walk-in freezer (-27 °F) and office and lab space. AMGRF houses approximately 21,400 meters of marine sediment and drill cores collected from over 90 United States Antarctic Program (USAP) research cruises. Approximately 5,300 meters of core are stored in core boxes, 6,000 meters of piston cores are stored in plastic sleeves in sections up to 3.5 meters long, 600 meters of core are stored in various other containers, and approximately 10,500 meters are stored in D-tubes. Less than 100 meters of core is stored at -20° F. In addition the AMGRF has an estimated 5000 bags of samples from grab samples and core catchers.

Florida State University has been an effective steward of these marine cores for many years but the University has recently notified NSF that continued operation of the AMGRF is no longer central to the long term vision of the University. Consequently, this solicitation seeks a qualified organization to provide core curation services for geological cores collected in the polar regions. The award will be administered as a Cooperative Agreement and will cover a five-year operating period beginning October 1, 2017. A programmatic review will be held prior to the completion of the initial period of support and the results will guide the decision whether to renew the Cooperative Agreement for another five-year period.

Cognizant Program Officer(s):

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

- Michael E. Jackson, Program Director, Antarctic Research Facilities & Special Projects, telephone: (703) 292-8033, email: mejackso@nsf.gov

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

- 47.050 --- Geosciences

Award Information

Anticipated Type of Award: Cooperative Agreement

Estimated Number of Awards: 1

The U.S. Antarctic Program, NSF anticipates funding $275,000 to $375,000 per year for 5 years or $1.375M to $1.875M total through a 5-year cooperative agreement.

Anticipated Funding Amount: $275,000 to $375,000

Annually pending availability of funds.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization: 1

Limit on Number of Proposals per PI or Co-PI: 1

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 FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.
  - 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: http://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:**

  Not Applicable

C. Due Dates

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

  August 03, 2016

Proposal Review Information Criteria

Merit Review Criteria:

National Science Board approved criteria. Additional merit review considerations 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 Antarctic Instrumentation, Facilities, and Special Projects and Earth Science Programs in the Antarctic Sciences Section of the National Science Foundation's (NSF) Division of Polar Programs provides support for the curation and long-term storage of core material collected on the Antarctic continent and its margins, and other Polar regions. This national collection of geologic materials is an important resource for scientific research on earth history, ice sheet development, and climate variability on the Antarctic continent and in the Southern Ocean. In addition, the cores and the data collected from these cores, are important resources for training the next generation of scientists.

A recent comprehensive review of the United States Antarctic Program (USAP) stressed the importance of geological sampling to answer fundamental questions about paleoclimate, global change, past and current ice sheet dynamics, and for understanding earth history. The results of this review are described two reports: a 2011 National Academy of Sciences (NAS) report titled “Future Science Opportunities in Antarctica and the Southern Ocean” and the USAP Blue Ribbon Panel report “More and Better Science in Antarctica Through Increased Logistical Effectiveness.” A second NAS report released in August 2015 also recommended research priorities that encompass a continued need for geological core materials, to advance scientific understanding of past environmental change in Antarctica and the Southern Oceans. Consequently, there continues to be an important scientific rationale to maintain current cores that are still viable for research and to accommodate acquisition of new core material in the coming years.

Currently, the Antarctic Marine Geology Research Facility (AMGRF) at Florida State University is providing core storage and curatorial services for the Antarctic sediment core collection. The AMGRF was established in 1963 and is housed in a single-story, 10,000 sq. ft. building on the Florida State University campus. The facility consists of a 6000 sq. ft. cold room (34 °F), a walk-in freezer (-27 °F), as well as office and lab space. The AMGRF houses approximately 21,400 meters of marine sediment and drill cores collected from over 90 United States Antarctic Program (USAP) research cruises. Approximately 5,300 m of core are stored in core boxes, 6,000 m of piston cores are stored in plastic sleeves in sections up to 3.5 m long, 600 m of core are stored in various other containers, and approximately 10,500 m are stored in D-tubes. Less than 100 m of core are stored in the walk-in freezer and all of the frozen core will fit in the two portable freezers that will transition with the facility. In addition the AMGRF has an estimated 5000 bags of samples from grab samples and core catchers. Geological drilling projects whose cores are curated at the AMGRF include the Dry Valleys Drilling Project, Cape Roberts Project, SHALDRIL 1 and 2, and ANDRILL 1 and 2.

The number of visitors to the AMGRF has varied between 10-15 on an annual basis. The number of cores received annually is variable depending on the number of field projects supported during the Antarctic field season. Between 2009-2015 approximately 420 m of core were contributed to the facility and 19,220 individual samples were requested from the collection (2,955 foreign and 16,265 domestic). Equipment that is expected to travel with the core to the new facility includes: Geotek core splitter; Geotek MSCL-XYZ, 5-track with MS, color spectrophotometer and XRF; Core racks with casters for D-tubes; 2-upright -20F freezers; freeze dryer; 2 CX-31P petrographic microscopes with one camera SC30; MXRI X-Ray; Malvern 2000 Particle Size Analyzer; Olympus BX51 microscope with camera DP25; Multisensor Split Core Logging, Geotek MSCL single track with MS, gamma density and resistivity; Mobile Shelving Space Saver; Laboratory Mobile Storage.

Florida State University has been an effective steward of these marine cores for many years but the University has recently notified NSF that continued operation of the AMGRF is no longer central to the long term vision of the University. Consequently, this solicitation seeks a qualified organization to provide core curation services for geological cores collected in the polar regions. The award will be administered as a Cooperative Agreement and will cover a five- year operating period beginning October 1, 2017. A programmatic review will be held prior to the completion of the initial period of support and the results will guide the decision whether to renew the Cooperative Agreement for another five-year period.

The Antarctic Sciences Section strongly encourages proposals from persons under-represented in science (e.g. women, minorities, those with disabilities) and from investigators new to Antarctic research with the goal of broadening participation of both individuals and institutions. Antarctic Sciences also strongly encourages international collaborations and research-related education and outreach as part of broader impacts of proposals.

II. PROGRAM DESCRIPTION

NSF's Antarctic Sciences Section intends to support efficient and cost effective core curation services for the U.S. Polar community. Work will be supported over the life of the award in accordance with the prospective Cooperative Agreement. The awardee will submit interim reports summarizing curatorial activities, with the last quarterly report in Years 1-4 being a roll-up of that year's activities, which then serves as the annual project report. In Year 5 of the award, the last quarterly report also will be a roll-up of that year's activities, which then serves as the final project report. The awardee will also participate in external program reviews by panels of experts convened by NSF who will review Awardee performance under the Cooperative Agreement.

The successful awardee will provide the services and support needed to curate the Antarctic marine geology core collection according to standard practices employed by other core repositories serving U.S. researchers. Proposals should clearly demonstrate that sufficient, climate controlled core storage is available to securely house the collection. In addition, the proposal should describe the staffing level required to provide core curation services to the research community. Proposals should also describe how the awardee would make the research community aware of core materials available for research and education. The awardee is expected to be an active member of the Antarctic and Arctic Data Consortium and must help facilitate activities of this group (http://www.a2dc.org/). The awardee will also be required to establish a curatorial advisory committee and the proposal should discuss the proposed expertise of committee members as well as the committee structure and its expected responsibilities.

Principal tasks for the curatorial activities are given below:

- Core Curation and Technical Services - Provide curation services for existing collections including sampling of cores to fill community requests, receipt and processing of new cores, development of core descriptions to be published on the awardee's website and hosting grantees or scientists in processing of cores.
- Stewardship of the core collection including activities to maintain awareness of the scientific viability of holdings and to inform periodic decisions about de-accessioning of material.
- Facility Website - The Awardee will provide a website that acts as a "gateway" to the holdings and curatorial services with links to other relevant Antarctic support entities and resources. The website will fully comply with federal and NSF guidelines.
- Core and Sample Database - The awardee must maintain a core and sample database that can be accessed through the curatorial activity website. The database must be searchable with basic information about the cores as well as information about samples previously removed from the cores.
- Research Capabilities - Basic core characterization capabilities must be provided to enable researchers to develop data sets of basic physical properties from the cores in the collection. The proposal must demonstrate that the awardee will be proactive in meeting future community requirements for curatorial improvements and enhanced curatorial capabilities.
- Education and Outreach - The awardee will establish the capability to support student education and training in Antarctic geosciences. The awardee should also proactively work with its curatorial advisory committee, as well as the Antarctic research community, to develop relevant scientific meetings and workshops.

Key Features of the Proposal

Responses to the key features below will be weighed equally in the review of submitted proposals.

1. Proposals should thoroughly describe the approach envisioned to perform each task outlined above and the facilities available to meet the storage needs of the current and anticipated core collection. Discuss any special qualifications or relevant organizational experience.
2. Proposals should clearly present the capabilities, experience, and qualifications of staff needed to provide the curatorial services. The proposal should explain the roles and responsibilities of each individual that will receive support under this award.
3. For each task, discuss how success will be assured relative to applicable measures of performance within the proposed budget.
4. Proposals should provide estimated costs for each year for the five-year performance period and should explain the benefits of the proposed approach and how this approach will make efficient use of personnel resources. NSF is seeking a creative and cost effective solution to provide curatorial services and stewardship of the core materials as well as new approaches to broaden utilization of the holdings by the research community. R

III. AWARD INFORMATION

Anticipated Type of Award: Cooperative Agreement

Estimated Number of Awards: 1

The U.S. Antarctic Program, NSF anticipates funding $275,000 to $375,000 per year for 5 years or $1.375M to $1.875M total through a 5-year cooperative agreement.

Anticipated Funding Amount: $275,000 to $375,000 annually pending availability of funds.

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization: 1

Limit on Number of Proposals per PI or Co-PI: 1

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 Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- 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: (http://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) 292-7827 or by e-mail from nsfpubs@nsf.gov.

See Chapter II.C.2 of the GPG 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 GPG instructions.

As part of the 15 page Project Description include:

1. A Management/Curatorial Plan that describes the management structure and staffing needs of the curatorial activities over the five-year term of the Cooperative Agreement. This plan should also include a description of the curatorial services that will be provided and how they will be managed.
2. A Community Interaction Plan describing how the awardee will interact with the research community to ensure good stewardship and research utilization of the cores.
3. An Advisory Plan describing how the awardee will establish an advisory group to guide its operations, including activities related to de-accession of holdings.
4. A description of facilities available to support the curatorial activities. This description should include any capital investments needed to curate the current core collection and a description of how future growth of the collection would be accommodated.
5. A description of any proposed innovations that will improve the efficiency of curatorial activities as well as its effectiveness in providing access to Antarctic geological core samples for the research community

Include as a Supplementary Document:

1. A Transition Plan that describes the timeline and resources needed to move the current AMGRF holdings to a new location. The Transition Plan should include cost estimates and a transition timeline to begin operations by October 1, 2017.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Budget Preparation Instructions:

All costs required to transition the holdings of the current facility to a new home or the procurement of new equipment must be documented, but should not be included in the proposed five-year budget and operations plan. Transition costs should be described, justified, and itemized in a Transition Plan that must be uploaded as a Supplementary Document. The Transition Plan must also include a proposed transition timeline that will demonstrate that the new curatorial activities will be operational by October 1, 2017. NSF does not anticipate providing funds for construction of a new building.

C. Due Dates

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

  August 03, 2016

D. FastLane / Grants.gov Requirements

For Proposals Submitted Via FastLane:

To prepare and submit a proposal via FastLane, see detailed technical instructions available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane 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: http://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 FastLane are strongly encouraged to use FastLane 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 the GPG as Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: http://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 *Investing in Science, Engineering, and Education for the Nation's Future: NSF Strategic Plan for 2014-2018*. 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. (GPG 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 GPG 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 underrepresented minorities 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

Review criteria will also include the following, assigned to the Key Features described in Section II Program Description as noted below:

1. Assessment of the proposed organizational structure, competence, and overall ability to provide service and support to the

research community (Key Features #1 and #2).
2. Thoroughness of the proposal in addressing the relevant elements of programmatic management and facilities requirements (Key Features #1, #2, #3, and #4).
3. Effectiveness of the proposal in conveying an understanding of the required effort and the approach used to achieve an appropriate balance of resource allocation (Key Features #3 and #4).

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by

Ad hoc Review and/or Panel Review, or Site Visit 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 http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 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 *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Special Award Conditions:

The awardee will participate in external program reviews by panels of experts convened by NSF who will review Awardee performance under the Cooperative Agreement.

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 *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

In accordance with the Research Performance Progress Report (RPPR), the awardee will submit interim reports summarizing curatorial activities, with the last quarterly report in Years 1-4 being a roll-up of that year's activities, which then serves as the annual project report. In Year 5 of the award, the last quarterly report also will be a roll-up of that year's activities, which then serves as the final project report.

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:

- Michael E. Jackson, Program Director, Antarctic Research Facilities & Special Projects, telephone: (703) 292-8033, email: mejackso@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@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 http://www.grants.gov.

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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 provide funding for special assistance or equipment to enable

persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 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.

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- **For General Information** (NSF Information Center)**:** (703) 292-5111
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  or telephone: (703) 292-7827
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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 Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). 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:

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