

**Arctic Research Opportunities** Arctic Natural Sciences; Arctic Social Sciences;  
Arctic System Science; Arctic Research Support and Logistics; and Arctic Research and  
Education

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**Program Solicitation**

**NSF 06-603**

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*Replaces Document(s):*

**NSF 05-618**

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**National Science Foundation**

Office of Polar Programs  
Division of Arctic Sciences

**Full Proposal Target Date(s):**

December 08, 2006

November 10, 2007

November 10, Annually Thereafter

**SUMMARY OF PROGRAM REQUIREMENTS**

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**General Information**

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**Program Title:**

Arctic Research Opportunities  
Arctic Natural Sciences; Arctic Social Sciences; Arctic System Science; Arctic Research Support and  
Logistics; and Arctic Research and Education

**Synopsis of Program:**

The National Science Foundation (NSF) invites investigators at U.S. organizations to submit proposals to conduct research about the Arctic or that is best done in the Arctic. Arctic research includes field and modeling studies and data analysis. Arctic research is supported at NSF by the Office of Polar Programs (OPP), Arctic Sciences Section (<http://www.nsf.gov/div/index.jsp?div=ARC>), in the Office of the Director, as well as by a number of other programs within the Foundation.

The goal of the NSF Arctic Sciences Section is to gain a better understanding of the Earth's physical, biological, geological, chemical, social and cultural processes, and the interactions of ocean, land, atmosphere, biological, and human systems in the Arctic. The Arctic Sciences Section and other NSF programs support projects that contribute to the development of the next generation of researchers and scientific literacy for all ages through education, outreach and broadening participation in science, technology, engineering and mathematics. Program representatives from OPP and other NSF programs that support arctic research coordinate across NSF, including joint review and funding of arctic proposals and mutual support of special projects with high logistical costs.

The International Polar Year begins in 2007, with NSF designated as the lead agency for the U.S.

Proposals may be submitted to the Arctic Opportunities solicitation for International Polar Year activities, as outlined in the National Academy of Science vision document (<http://www.us-ipy.org>), and should be consistent with the program descriptions and requirements described in the Arctic Opportunities solicitation.

The Arctic Research Opportunities solicitation provides investigators with information about available programs and priorities to determine the program best suited to their proposed work. Proposals should be written and planned in accordance with NSF's Grant Proposal Guide ([http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpg](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg)), OPP's Guidelines and Award Conditions for Scientific Data (OPP 9-91 available on the OPP web site <http://www.nsf.gov/dir/index.jsp?org=OPP>) and the Principles for Conduct of Research in the Arctic (<http://www.nsf.gov/od/opp/arctic/conduct.jsp>).

**Cognizant Program Officer(s):**

- Renee D. Crain, Arctic Research and Education Assistant Program Director, 755 S, telephone: (703) 292-4482, fax: (703) 292-9082, email: [rcrain@nsf.gov](mailto:rcrain@nsf.gov)
- Martin Jeffries, 740 S, telephone: (703) 292-8029, email: [mjeffrie@nsf.gov](mailto:mjeffrie@nsf.gov)
- Anna Kerttula de Echave, Arctic Social Sciences Program Director, 740 S, telephone: (703) 292-7432, fax: (703)292-9082, email: [akerttul@nsf.gov](mailto:akerttul@nsf.gov)
- Brendan P. Kelly, Arctic Natural Sciences Program Manager, 755, telephone: (703) 2927434, email: [bkelly@nsf.gov](mailto:bkelly@nsf.gov)
- Neil R. Swanberg, Arctic System Science Program Director, 755 S, telephone: (703) 292-8029, email: [nswanber@nsf.gov](mailto:nswanber@nsf.gov)
- William J. Wiseman, Arctic Natural Sciences Program Director, 740 S, telephone: (703) 292-4750, fax: (703) 292-9082, email: [wwiseman@nsf.gov](mailto:wwiseman@nsf.gov)

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

- 47.078 --- Office of Polar Programs

**Award Information**

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**Anticipated Type of Award:** Standard Grant or Continuing Grant or Cooperative Agreement

**Estimated Number of Awards:** 40 per year, pending availability of funds.

**Anticipated Funding Amount:** \$16,000,000 per year approximately, pending availability of funds.

**Eligibility Information**

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**Organization Limit:**

Proposals may only be submitted by the following:

- U.S. Organizations

**PI Limit:**

None Specified

**Limit on Number of Proposals per Organization:**

None Specified

**Limit on Number of Proposals per PI:**

None Specified

## Proposal Preparation and Submission Instructions

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### A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable
- **Preliminary Proposal Submission:** Not Applicable
- **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](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/bfa/dias/policy/docs/grantsgovguide.pdf>)

### B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required under this solicitation.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Not Applicable

### C. Due Dates

- **Full Proposal Target Date(s):**

December 08, 2006

November 10, 2007

November 10, Annually Thereafter

## Proposal Review Information Criteria

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**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

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**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**

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The Arctic Sciences Section in the Office of Polar Programs (OPP) supports scientific research in the arctic region and related research and operational support. Science programs are suitable for disciplinary, multidisciplinary and broad, interdisciplinary investigations directed toward both the Arctic as a region of special scientific interest and a region important to the global system. Models indicate that the Arctic is among the regions most sensitive to environmental change. Climate records and human settlement spanning thousands of years, as well as vast landscapes and partially ice-covered oceans, provide a unique basis for integrated research on global systems and human adaptation.

OPP disciplinary interests appropriate to the Arctic Natural Sciences program encompass the atmospheric, biological, cryologic, earth, and ocean sciences. A broad spectrum of social sciences research is funded through the Arctic Social Sciences program. The Arctic System Science program provides the unique opportunity for interdisciplinary investigations of the Arctic as a system. OPP also encourages research relevant to both polar regions, especially glaciology, permafrost, sea ice, oceanography, ecology, and aeronomy. The integration of research with education is consistent with NSF's merit review criteria and is encouraged by OPP in proposals to the research programs. Projects may seek funding for pilot projects linking research with education through the Arctic Research and Education program. Arctic research projects that partner with schools, students (K-12 and higher), and communities in the North and that improve the public's understanding of science and basic research are strongly encouraged.

The Foundation is one of twelve Federal agencies that sponsor or conduct arctic science, engineering, and related activities. As mandated by the Arctic Research and Policy Act of 1984, Federal interagency research planning is coordinated through the Interagency Arctic Research Policy Committee (IARPC), which is chaired by NSF.

The United States Arctic Research and Policy Act of 1984 defines the Arctic as all areas north of the Arctic Circle and all United States territory north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwim Rivers; all contiguous seas including the Arctic Ocean and the Beaufort, Bering, and Chukchi seas; and the Aleutian chain. Field projects falling outside these boundaries but directly related to arctic science and engineering conditions, or issues, such as laboratory and theoretical studies, may also be appropriate; OPP recommends contacting the program director to verify the appropriateness of the proposed study before preparing a proposal.

Because the Arctic is the homeland of numerous Native peoples, special attention must be given to all aspects of research and education that may potentially impact their lives. An interagency statement of "Principles for the Conduct of Research in the Arctic" has been developed. All arctic research grantees are expected to abide by these principles, which can be found at <http://www.nsf.gov/od/opp/arctic/conduct.jsp>. Researchers may find helpful information in the "Guidelines for Improved Cooperation between Arctic Researchers and Northern Communities" at <http://www.arcus.org/guidelines>.

The Study of Environmental ARctic CHange (SEARCH) is an interagency effort to study changes occurring in the arctic system (<http://www.arcus.org/SEARCH/index.php>). NSF is among the agencies contributing to this effort, which is also gaining support as a major international effort as the International Study of Arctic Change (ISAC). SEARCH themes supported by the Arctic Sciences Section will be guided by the research community through avenues such as the SEARCH Science Steering Committee, the SEARCH Open Science Meeting and the SEARCH Implementation Workshop held in May 2005. The Arctic Sciences Section has funded components of SEARCH research through special announcements of opportunity and expects to continue supporting the development of SEARCH through special announcements and through this program solicitation, depending on the availability of funds.

The fourth International Polar Year (IPY) will take place March 2007-March 2009, with NSF designated as the lead agency for the United States. SEARCH and its international extension, the International Study of Arctic Change (ISAC; <http://www.aosb.org/isac.html>), are important research emphasis areas to be addressed during IPY. More information about IPY can be found at <http://www.ipy.org> and <http://www.us-ipy.org>. A special solicitation for IPY proposals is anticipated to be available from OPP in the second half of 2006. Additional information about NSF opportunities for the IPY can be found at <http://www.nsf.gov/od/opp/ipy/ipyinfo.jsp>.

## II. PROGRAM DESCRIPTION

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This section provides detailed information and descriptions of the following programs, emphasis areas and special research opportunities:

- A. **Arctic Natural Sciences Program**
- B. **Arctic Social Sciences Program**
- C. **Arctic System Science Program**
- D. **Arctic Research Support and Logistics Program**
- E. **Arctic Research and Education Program**
- F. **International Polar Year (IPY)**

The descriptions below should help guide investigators in determining the appropriate program for their proposals. In addition, please consult the full text of this announcement for further information on proposal preparation, field work, data management, review criteria, award conditions and other pertinent information.

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### A. **Arctic Natural Sciences Program**

The Arctic Natural Sciences (ANS) Program provides core support for disciplinary and interdisciplinary research on arctic processes and coordinates its support of arctic research with the Directorates for Geosciences, Mathematical and Physical Sciences, Social, Behavioral, and Economic Sciences, and Biological Sciences. Upper atmospheric and space physics proposals often are considered jointly with the Division of Atmospheric Sciences in the Geosciences Directorate and with OPP's Antarctic Aeronomy and Astrophysics Program when conjugate studies are proposed.

Areas of special interest include marine and terrestrial ecosystems, arctic atmospheric and oceanic dynamics and climatology, arctic geological and glaciological processes, and their connectivity to lower latitudes. The Program particularly encourages proposals that treat uniquely arctic processes and that provide hypothesis testing required to produce the understanding needed to develop predictive tools based on first principles. Proposals to perform monitoring *per se* are discouraged. Similarly, proposals that treat generic processes that could be adequately studied outside the Arctic are more appropriate to other programs within the Foundation.

ANS supports projects that emphasize understanding the adaptation of organisms to the unique aspects of the arctic environment. Terrestrial and marine geology and geophysics projects of greatest interest are those that will improve our ability to interpret the geologic record of environmental change in the Arctic, particularly

during the Quaternary. Understanding the processes responsible for the evolution of permafrost and consequences of changing permafrost remains a priority, as well. Projects that focus on the history and dynamics of all naturally occurring forms of arctic snow and ice, including seasonal snow, glaciers, and the Greenland ice sheet, are encouraged. The Program supports ocean science projects that advance knowledge of the processes of the Arctic Ocean and adjacent seas and their interactions with their boundaries. The development of sensors necessary to observe these processes is also supported by ANS.

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## B. Arctic Social Sciences Program

The OPP Arctic Social Sciences Program (ASSP) encompasses all social sciences supported by NSF. These include, but are not limited to anthropology, archaeology, economics, geography, linguistics, political science, psychology, science and technology studies, sociology, traditional knowledge and related subjects.

Although proposals in any of the social sciences mentioned above are welcome, areas of particular interest include culture and environment, resources and economic change, development of social and political institutions, ethnic (cultural) and regional identities, and knowledge systems. These five research areas are identified and explained in the report, *Arctic Social Sciences: Opportunities in Arctic Research* (Arctic Research Consortium of the United States, June 1999, Fairbanks, Alaska; available for download at [http://www.arcus.org/ASSP/1999\\_report.html](http://www.arcus.org/ASSP/1999_report.html)).

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).

Dissertation research proposals are accepted by the Arctic Social Sciences program. Please consult the "Dissertation Panel Advice to Students" guidelines in the Division of Behavioral and Cognitive Sciences (DBCS; <http://www.nsf.gov/sbe/bcs/anthro/cultdadv.jsp>). These guidelines are to provide the applicant with a basic outline for their proposals. Applicants should apply to this OPP solicitation and talk to the ASSP program director about funding limits, which vary from those in DBCS.

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). Advice is available at <http://www.nsf.gov/bfa/dias/policy/guidance.jsp>.

The Arctic Social Sciences Program considers joint review and funding within OPP, with other NSF programs, other agencies and international efforts when appropriate. Researchers interested in linguistics are encouraged to examine the announcement of opportunity on Documenting Endangered Languages ([http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf05590&org=NSF](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf05590&org=NSF)) released to support projects to develop and advance knowledge concerning endangered human languages. The DEL program is interested in proposals from arctic researchers for work during the International Polar Year.

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## C. Arctic System Science (ARCSS) Program

The Arctic comprises a complex, tightly coupled system including air, ice, ocean, land and people. The arctic system behaves in ways that we do not understand fully and has demonstrated the capacity for rapid and unpredictable change with global ramifications. Because the Arctic is pivotal to the dynamics of our planet, it is critical that we understand this complex and interactive system. The goal of the Arctic System Science (ARCSS) program is to answer the following question:

***What do changes in the arctic system imply for the future?***

To address this question ARCSS must:

- Advance from a component understanding to a system understanding of the Arctic.
- Understand the behavior of the arctic system, past, present, and future.
- Understand the role of the Arctic as a component of the global system.
- Include society as an integral part of the arctic system.

Building on a solid foundation of over a decade of observation, modeling, and process studies, the ARCSS program is entering a synthesis-driven enterprise aimed at achieving system level understanding of the Arctic. This may well include some of the kinds of component level studies carried out before, but successful proposals will focus much more on the relationships amongst the pieces of the system than on the pieces themselves and priorities will be set by the needs of the program in understanding the system. ARCSS will focus on achieving that system understanding. The ARCSS program will:

- Integrate modeling, observational, process, and paleoenvironmental studies.
- Develop a hierarchy of conceptual and quantitative models of the arctic system.
- Identify the most sensitive components and interactions driving arctic system behavior.
- Refine understanding of these key components and interactions.
- Strengthen the interactions between arctic system research and the broader Earth system science.
- Enhance two-way communication with stakeholders, decision-makers, and the public.

#### *ARCSS Structure and Focus*

In recent years ARCSS had four active, more-or-less disciplinary components: Ocean/Atmosphere/Ice Interactions (OAI); Land/Atmosphere/Ice Interactions (LAI); Human Dimensions of the Arctic System (HARC), and Paleoenvironmental Arctic Sciences (PARCS), under which research activities were developed. PARCS proposals were considered within the Earth System History competition of the United States Global Change Research Program solicited under a different NSF announcement with separate submission dates.

Since then the ARCSS program has undergone a major transition, led by the research community, away from these somewhat multidisciplinary organizing principles toward a new program that is integrated, more synthetic and truly interdisciplinary. Efforts will continue to extract as much as possible from research already performed and to capture the knowledge and experience achieved under these components. Replacing the disciplinary components will be a more pro-active ARCSS committee that will guide the system level thinking of the program, strive to develop more extensive connections to a broader array of disciplines for new ideas, and devote considerable attention to fostering ARCSS research efforts during their full life cycle from inception of idea through archival of data, synthesis of results and communication of them to the community and public.

The ARCSS program supports most of its research through special targeted announcements developed in close coordination between NSF and the ARCSS research community. However ARCSS does support a small number of proposals received through this program solicitation. Proposals to this solicitation should put forth new ideas or efforts that do not fit well under more organized banners and that are smaller in scope than one might find in the specialized announcements of opportunity. Just as any ARCSS proposal, these proposals must focus on advancing our knowledge of the arctic system as a whole. Moreover, with the exception of proposals that were specifically encouraged by a panel and by NSF to resubmit as filling an essential gap in a particular ARCSS effort, this program solicitation should not be viewed as a mechanism to re-submit proposals that were declined in a targeted announcement, because those efforts are assembled as a package.

Information describing the current thinking in the ARCSS program is available on the ARCSS web site (<http://www.arcus.org/ARCSS/index.html>) and via links therein. Future special announcements for funding opportunities in ARCSS will draw on and aggregate ideas presented in more than one individual disciplinary science plan. ARCSS is working proactively with its constituent communities to develop new ideas.

#### *Synthesis in ARCSS*

The arctic system includes physical, chemical, geological, biological, and cultural factors that respond to global change processes. Some models that predict the climatic response to global change show greater change in the Arctic than any other region. The predicted climatology, however, may not consider the largely unknown interannual to centennial variability in the Arctic. The historical and current human occupation of and dependence on resources in the Arctic, a region subject to possibly large environmental perturbations, makes it important that scientists understand better the interactions of the global and arctic systems. Therefore, the research supported in ARCSS extends beyond purely observational studies to those studies that predict and analyze the consequences of environmental variability and global change important to wise stewardship of renewable resources and development of decision and policy options for resource managers and residents.

To achieve this, ARCSS supports efforts that synthesize knowledge of how the arctic system works, including focus on the linkages between parts of the system, and better articulation of the implications for the future. In general the program is trying to concentrate on understanding the relations among the

components of the system and leaving the detailed studies at the subcomponent level to other, more disciplinary programs.

### *Defining an ARCSS Proposal*

The interdisciplinary nature of system science can make it difficult to determine whether a proposal is or is not suitable for the ARCSS program. A good rule of thumb is if a proposal is focused on some piece of the system, then it is probably not a good fit to ARCSS, unless the understanding to be achieved about that piece is demonstrably essential to system-level understanding. A proposal suitable for competition in the ARCSS program will normally be expected to:

- Have a direct connection to and be essential to success of the ARCSS effort,
- Fill a significant gap in our understanding of the arctic system that has been identified by the ARCSS synthesis,
- Determine or investigate the important relations amongst components of the arctic system,
- Help explain the range of states for the arctic system, or
- Contribute significantly to our understanding of the structure and function of the arctic system through synthesis and further study.

To be successful, a proposal to the ARCSS program should have several or all of the above characteristics. Moreover ARCSS proposals **MUST** define explicitly and in detail how they contribute to broad system understanding. Failure to do so will result in the return of a proposal without review. The degree to which a proposal contributes to system understanding will be one of the key factors in judging its intellectual merit.

A good ARCSS project (either an individual proposal or set of proposals):

1. Demonstrates explicitly how the components and their interactions (or processes) DRIVE the arctic system.
2. Explicitly incorporates synthesis into the design of the project (as an intrinsic part of the project).
  1. Integrates each part of the project internally.
  2. Integrates into the arctic system (through analysis and synthesis).
3. Has a broad and/or significant impact on understanding the arctic and earth system.
4. Includes innovative (or tried and true) approaches for data management and transfer, including value-added products.

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## **D. Arctic Research Support and Logistics Program**

The Arctic Research Support and Logistics (RSL) program will accept proposals that:

- Support long-term observations of the Arctic,
- Support the acquisition of data sets useful to a broad segment of the arctic research community,
- Will lead to Cooperative Agreements to operate multi-use arctic research facilities, or
- Provide services that broadly support the arctic research community, such as facilitating communication, development of research ideas in an arctic-wide community setting, and cooperation with arctic communities.

### *Data Acquisitions or Collection*

The RSL program will accept proposals that:

- Support the acquisition of satellite and airborne imaging and mapping data and the production and dissemination of user-friendly data products that will be made available to the NSF research community.
- Support aspects of collecting underway data from ships. This includes documentation, quality control and archiving. Proposals need not address all possible data streams, but they should address the end-to-end management of any covered data stream to the point that data are suitable for acceptance into an appropriate archive. Researchers are required to develop a web site or alternative venue that advertises the existence of the data, and how the data can be obtained. Researchers wishing to propose an underway data project are encouraged to review the posted correspondence that is available on the AICC web site (<http://www.unols.org/committees/aicc/>). It is envisioned that proposals may be received to cover the acquisition of multibeam and other bathymetric data, acoustic Doppler current profiler data, and meteorological data.

- Develop components of geospatial information infrastructure to benefit the arctic research community. The Arctic GIS web site hosted by the Arctic Research Consortium of U.S. (ARCUS; <http://www.arcus.org/gis>) contains information about meetings, workshops, initiatives and links to data and information about arctic geospatial information infrastructure.

### *Facility Operations*

The RSL program will accept proposals for the operation of new or existing research facilities that support NSF-funded projects. If successful, awards are expected to be made as cooperative agreements. Proposals should show the range of projects and programs supported by the proposed facility.

The proposal should also show the facility's approach to project planning, how decisions are made on project support plans, the approach to project support in a research and polar environment (both of which tend to force adaptation of plans), how the facility solicits user feedback and how that feedback is evaluated and leads to organizational change.

### *Field Work*

The RSL program supports field components of research funded by the Arctic Sciences Section, other directorates at NSF and occasionally other federal agencies. Support includes, but is not limited to, providing transportation, food and shelter while conducting field work, user and day-rate fees at field camps, salaries of staff hired specifically for field work, activities such as travel to coordinate projects with permitting agencies and local communities. More detailed information is available on the RSL web site ([http://www.nsf.gov/od/opp/arctic/res\\_log\\_sup.jsp](http://www.nsf.gov/od/opp/arctic/res_log_sup.jsp)).

Access to logistical support from the RSL program is through the regular proposal process. For information regarding field support for proposals with field components, please see the *Proposal Preparation and Submission Instructions* below.

## **E. Arctic Research and Education Program**

The integration of scientific research with science education and outreach is important to the Office of Polar Programs. Investigators are encouraged to include education activities in their research proposals in accordance with the Broader Impacts review criterion. The Arctic Research and Education program supports activities that bridge research and education in the arctic sciences. The goals of the program are to:

- Promote science literacy and widespread understanding of polar research,
- Increase diversity in the (polar) sciences,
- Contribute to improved K-12 science instruction,
- Attract and retain students in Science, Technology, Engineering and Mathematics fields, and
- Develop long-term collaborations between arctic research and science education.

Projects supported by this program include formal or informal education for students K-12 and higher or to the broader public. Awards can be supplements to existing research grants and agreements or proposals for new ventures. Award sizes vary but are typically \$5,000-50,000. This program is appropriate to pilot new project ideas that, once developed, may evolve into education efforts that can compete for long-term support in other programs at NSF and elsewhere. In addition, the Arctic Research and Education program seeks to collaborate with other directorates at NSF to promote the integration of research and education. Examples of projects that have received support from this program are:

- Alaska Lake Ice and Snow Observatory Network (ALISON; <http://www.gi.alaska.edu/alison/>)
- Teachers and Researchers Exploring and Collaborating (TREC; <http://www.arcus.org/TREC/index.php>)
- Sustainability and Stewardship in Alaska (<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0331261>)
- Bridging the Poles Workshop ([http://www.ideo.columbia.edu/~mkt/PolarED\\_Web.htm](http://www.ideo.columbia.edu/~mkt/PolarED_Web.htm))
- Science Journalists at Toolik Field Station (<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0425045>)

The International Polar Year will be an important emphasis for projects supported through Arctic Research and Education 2007-2009.

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## F. International Polar Year (IPY)

The fourth International Polar Year (IPY) will take place March 2007-March 2009 (see <http://dels.nas.edu/us-ipy> and <http://www.ipy.org/>).

A special solicitation for IPY was released from OPP in January 2006 requesting proposals for specific science and education themes. One of these themes is furthering the Study of Environmental ARctic CHange (SEARCH) program (<http://www.arcus.org/SEARCH/index.php>) through development and implementation of a circumarctic observation system. The SEARCH Science Steering Committee convened the SEARCH Implementation Workshop in May, 2005. The implementation report from that workshop is available on the SEARCH web site and highlights emphasis areas in the SEARCH program. Proposals for SEARCH and Arctic Observing Network activities that address the science themes of the OPP IPY special solicitation should have been submitted to that solicitation.

This Arctic Opportunities solicitation is appropriate for proposals for activities that address IPY goals, but that may not fit the emphasis areas described in the special IPY solicitation.

A second special IPY solicitation is expected to be released in the second half of 2006. The topic areas for that solicitation have not yet been finalized.

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## ADDITIONAL OPPORTUNITIES

### Other NSF Funding Opportunities

See Section IX on Other Programs of Interest and consult the NSF online program guide to browse for funding opportunities ([http://www.nsf.gov/funding/browse\\_all\\_funding.jsp](http://www.nsf.gov/funding/browse_all_funding.jsp)).

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## III. AWARD INFORMATION

Pending availability of funds, \$16,000,000 may be available for proposals to this solicitation. This does not include logistics support that may be provided through the Arctic Research Support and Logistics program. NSF estimates 40 awards per year as standard or continuing grants, or cooperative agreements. The number of awards and average award size and duration are subject to the availability of funds.

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## IV. ELIGIBILITY INFORMATION

### Organization Limit:

Proposals may only be submitted by the following:

- U.S. Organizations

### PI Limit:

None Specified

### Limit on Number of Proposals per Organization:

None Specified

### Limit on Number of Proposals per PI:

None Specified

#### **Additional Eligibility Info:**

Only U.S. organizations are eligible to submit proposals under this solicitation. There is no limit on PI eligibility, and there is no limit on the number of proposals that may be submitted.

## **V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS**

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### **A. Proposal Preparation Instructions**

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**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](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 [pubs@nsf.gov](mailto:pubs@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/bfa/dias/policy/docs/grantsgovguide.pdf>). 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 [pubs@nsf.gov](mailto:pubs@nsf.gov).

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.3 of the Grant Proposal Guide provides additional information on collaborative proposals.

**Proposals may be returned without review for failing to comply with the Grant Proposal Guide, this solicitation and the instructions that supplement the GPG (if submitted via FastLane) or the NSF Grants.gov Application Guide (if submitted via Grants.gov).**

Please note:

- Proposals that are re-submissions must be substantially changed from the original,
- Proposals must comply with specifications for minimum font size and maximum lines and characters per centimeter,
- Biosketches must follow formatting rules, in particular, do not include more than 10 publications,
- For efficiency of processing, please arrange entries alphabetically by last name in lists such as collaborators, students, advisors, other affiliations, and suggested reviewers.

#### **Principles for the Conduct of Research in the Arctic**

Researchers should conform to the *Principles for the Conduct of Research in the Arctic*, prepared by the Social Science Task Force of the U.S. Interagency Arctic Research Policy Committee (IARPC) and approved by IARPC in 1990. These principles apply to all researchers and are listed at <http://www.nsf.gov/od/opp/arctic/conduct.jsp>. Proposers may also find the "Guidelines for Improved Cooperation between Northern Communities and Arctic Researchers" helpful (<http://www.arcus.org/guidelines>).

### **Proposals Involving Human Subjects**

The NSF Grant Proposal Guide ([http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpg](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg)) provides procedural information for projects with human subjects in the section Projects Involving Human Subjects. Investigators must ensure that human 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). Additional information is available at <http://www.nsf.gov/bfa/dias/policy/guidance.jsp>. Letters of permission or approval, such as those from Native organizations or communities in which the work will take place, should be included in the Supplementary Documents section of proposal.

### **Proposals Involving Arctic Field Work**

The Foundation and researchers to whom it makes awards are obliged to conform to the various acts governing activities affecting the environment and cultural or historic properties. Researchers should be aware of these acts and adhere to their requirements. Further information concerning environmental issues is provided below under the heading 'Environmental Policy Considerations of Fieldwork'. Researchers proposing work that may affect cultural or historic properties, or whose work involves tribal lands must cooperate with the agency in complying with the consultation requirements of section 106 of the National Historic Preservation Act. Researchers are encouraged to contact OPP for more information about cultural or historic impact considerations of their proposed field work. 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>.

The Arctic Sciences Section does not require the use of logistics forms for arctic fieldwork. However, for proper review of the proposal and to initiate logistics planning for successful proposals, the anticipated fieldwork should be described in the proposal. Proposals are encouraged to include a section describing the scope of the fieldwork, the overall project schedule, maps and figures in the Project Description.

If a third-party is arranging logistics (a logistics contractor) their costs should **not** be itemized or included in the FastLane budget forms. Instead, the scope and kind of support should be described clearly in the budget justification to allow the logistics provider and reviewers to assess the scope, feasibility and initiate planning (see Section II, "Arctic Research Support and Logistics").

Proposals that include fieldwork should be submitted well in advance of the field season to allow for logistics planning. For example, proposals submitted in November 2006 should not plan to go to the field in summer of 2007, but rather in 2008. Third-party logistics providers may be able to accommodate shorter planning times but should be consulted in advance of proposal submission to verify.

The RSL program was created, in part, to enhance access, safety and interactions with arctic communities. Accordingly investigators are encouraged to propose effective and efficient use of logistics resources to reach research goals and cooperate with communities near field research sites. More information is available on the RSL program web site ([http://www.nsf.gov/od/opp/arctic/res\\_log\\_sup.jsp](http://www.nsf.gov/od/opp/arctic/res_log_sup.jsp)).

### **Logistics Providers and Field Stations**

The RSL program works with several organizations to meet the needs of arctic field research. NSF's prime arctic logistics contractor is VECO Polar Resources (VPR; <http://vecopolar.com/>). VPR can help scope out logistics for all projects, regardless of whether they ultimately provide the logistics services. They are helpful in proposal preparation and can provide letters of support for projects to establish they are achievable. Investigators are encouraged to contact VPR to develop a preliminary plan and to provide project support if appropriate.

Researchers proposing to work near Barrow, Alaska are required to contact the Barrow Arctic Science Consortium (BASC) prior to submission of a proposal to ensure the project can be accommodated, see (<http://www.sfos.uaf.edu/basc/>).

Researchers proposing to work at Toolik Field Station are required to contact the station prior to submission of a proposal to ensure the project can be accommodated, see (<http://www.uaf.edu/toolik/>). More information about research support and logistics facilities in the Arctic can be found at the Arctic Logistics Information And Support (ALIAS) web site

### **Greenland**

Principal investigators contemplating work in Greenland should obtain the Danish Polar Center application form for research in Greenland. Application forms are available at <http://www.dpc.dk/Res&Log/ProjectPlanner/Start.html>. A copy of the application should be included in the Supplementary Documents to the proposal.

### **Arctic Logistics Information And Support (ALIAS)**

The ALIAS database contains useful information about research support and logistics capabilities around the Arctic <http://www.arcus.org/alias/>.

### **UNOLS Vessel Requests**

Researchers intending to use a vessel from the University-National Oceanographic Laboratory System (UNOLS) or the U.S.

Coast Guard (USCG) vessels *Healy*, *Polar Sea* or *Polar Star* should follow the UNOLS procedure (<http://www.unols.orgw.unavco.org>) is a non-profit organization that supports and promotes Earth science by advancing high-precision geodetic and strain techniques such as the Global Positioning System (GPS) to support university and other research investigators in Earth sciences research. UNAVCO provides state-of-the-art GPS equipment and field engineering support for projects, by installing, operating and maintaining continuous GPS networks globally, by undertaking new technology development and evaluating commercially available products for research applications, and by archiving GPS data and data products for future applications. UNAVCO maintains Differential GPS stations and provides other services to arctic researchers. Investigators should contact Bjorn Johns at UNAVCO to arrange these products ([bjorn@unavco.org](mailto:bjorn@unavco.org) or 303-381-7470).

#### **Environmental Policy Considerations of Fieldwork**

Federal agencies must comply with the National Environmental Policy Act (NEPA). The Code of Federal Regulations (CFR) pertaining to NSF can be found at Title 45 Part 640 (<http://www.gpoaccess.gov/cfr/index.html>). Most NSF awards support individual scientific research projects and are not considered major Federal actions significantly affecting the quality of the human environment. Projects involving construction, drilling or major disturbance to the local environment may need to have an assessment of environmental impacts performed.

In addition to NEPA, all federal agencies are regulated under acts such as the Endangered Species Act, the Marine Mammal Protection Act, and the National Historic Preservation Act. Researchers proposing projects with fieldwork involving perturbation of the environment, excavation of archaeological sites, use of underwater seismic air guns, drilling, construction, or other activity that may be considered a major Federal action should confer with program officers for guidance on project planning in compliance with NEPA and other federal environmental protection acts. For example, work proposed in the tundra area around Barrow, Alaska should consider the presence of threatened Steller's eiders (*Polysticta stelleri*) May-July and may require federal consultations. Researchers are encouraged to contact OPP for more information about environmental impact considerations of their proposed field work.

#### **International Polar Year (IPY)**

Proposals being submitted as contributions to IPY must include a statement articulating the relevance of the project to IPY and addressing IPY goals as expressed by the U.S. National Academy of Sciences (U.S. NAS) and the International Council for Science (ICSU). For U.S. NAS IPY information, see <http://dels.nas.edu/us-ipy>. For ICSU IPY information, see <http://www.ipy.org> or <http://www.ipy.org/development/framework/index.htm>.

#### **Identify this Solicitation Number on the Proposal Cover Sheet**

### **B. Budgetary Information**

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**Cost Sharing:** Cost sharing is not required under this solicitation.

### **C. Due Dates**

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• **Full Proposal Target Date(s):**

December 08, 2006

November 10, 2007

November 10, Annually Thereafter

**All programs covered under this solicitation will have a single, annual competition. Proposers must contact the cognizant program director for approval, prior to the Target Date, when intending to submit a proposal after the Target Date.** This is essential for orderly review of all submissions. Late proposals may miss a particular panel review but may still be reviewed ad hoc if received after the target date, provided the proposer has prior approval from the program director. Failure to obtain prior approval of the cognizant program director for late submissions may result in the proposal being returned without review.

### **D. FastLane/Grants.gov Requirements**

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• **For Proposals Submitted Via FastLane:**

Detailed technical instructions regarding the technical aspects of preparation and submission via FastLane are 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](mailto: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.

**Submission of Electronically Signed Cover Sheets.** The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane Website at: <https://www.fastlane.nsf.gov/fastlane.jsp>.

#### • 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. The Grants.gov's Grant Community User Guide is a comprehensive reference document that provides technical information about Grants.gov. Proposers can download the User Guide as a Microsoft Word document or as a PDF document. The Grants.gov User Guide is available at: <http://www.grants.gov/Customersupport>. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding 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](mailto: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.

## VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

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Proposals received by NSF are assigned to the appropriate NSF program where they will be reviewed if they meet NSF proposal preparation requirements. 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 who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the 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.

### A. NSF Merit Review Criteria

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All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which the reviewer is qualified to make judgements.

#### **What is the intellectual merit of the proposed activity?**

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

#### **What are the broader impacts of the proposed activity?**

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

Examples illustrating activities likely to demonstrate broader impacts are available electronically on the NSF website at: <http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>.

NSF staff also will give careful consideration to the following in making funding decisions:

***Integration of Research and Education***

One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

***Integrating Diversity into NSF Programs, Projects, and Activities***

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- 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.

**Additional Review Criteria:**

**International Polar Year (IPY)**

In addition to the NSF merit review criteria, proposals submitted as contributions to IPY will be evaluated on the relevance and effectiveness of the project to address goals for IPY as expressed by the U.S. National Academy of Sciences (U.S. NAS) and the International Council of Scientists (ICSU). For U.S. NAS IPY information, see <http://dels.nas.edu/us-ipy>. For ICSU IPY information, see <http://www.ipy.org> or <http://www.ipy.org/concept/index.html>.

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**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 formulate a recommendation to either support or decline each proposal. 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 is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, 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.

In all cases, 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 and 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.

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**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

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An NSF award consists of: (1) the award letter, 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 letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); \* or Federal Demonstration Partnership (FDP) Terms and Conditions \* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. 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/general\\_conditions.jsp?org=NSF](http://www.nsf.gov/awards/managing/general_conditions.jsp?org=NSF). Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [pubs@nsf.gov](mailto:pubs@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](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag).

### Special Award Conditions:

#### Principles for the Conduct of Research in the Arctic

Principal Investigators are expected to follow the Principles for the Conduct of Research in the Arctic, prepared by the Social Science Task Force of the U.S. Interagency Arctic Research Policy Committee (IARPC) and approved by IARPC in 1990. These principles are listed at <http://www.nsf.gov/od/opp/arctic/conduct.jsp>. Investigators may find useful the Guidelines for Improved Cooperation between Arctic Researchers and Northern Communities (<http://www.arcus.org/guidelines>).

#### Guidelines for Scientific Data (OPP 9-91)

This statement provides guidelines from the Office of Polar Programs (OPP) at the National Science Foundation (NSF) and sets out special conditions applicable to OPP grants to implement the Foundation's Sharing Policy by assuring timely submission of OPP-award data to national data centers and other OPP-specified repositories for secondary use by the scientific community. The Office of Polar Programs, in conformance with NSF policy (see Grant Proposal Guide, <http://www.nsf.gov/pubsys/ods/getpub.cfm?gpg>), expects investigators to share with other researchers, at no more than incremental cost and within a reasonable time, the data, derived data products, samples, physical collections and other supported materials gathered or created in the course of the research project. The purpose of this policy is to facilitate full and open access to data and materials for polar research from projects supported by OPP.

#### General Guidelines

For all OPP supported projects:

- All data and derived data products collected under OPP-awards which are appropriate for submission to a national data center or OPP specified data repository (OPP-approved web site) should be promptly submitted within a reasonable amount of time, as described below, in responsibilities of Principal Investigators of OPP-Awards.
- OPP considers the documentation of data sets, known as metadata, as vital to the exchange of information on polar research and to a data set's accessibility and longevity for reuse.
- Data archives of OPP-supported projects should include easily accessible information about the data holdings, including quality assessments, supporting ancillary information, and guidance for locating and obtaining the data.
- National and international standards should be used to the greatest extent possible for the collection, processing and communication of OPP-sponsored data sets.

**Special Note for Arctic Social Sciences Awards:** The Arctic Social Sciences Program supports the full range of social science disciplines and adheres to the Data Sharing Policy developed by NSF's Directorate for Social Behavioral and Economic Research (SBE). The nature of the data, the way they are collected, analyzed, and stored, and the pace at which this occurs, vary widely. Different storage facilities and access requirements exist for different types of social science data, e. g., archaeological data, specimens from physical anthropology, large-scale survey data, oral interviews, and field records. Where appropriate and possible, grantees from all social science fields will develop and submit specific plans to share materials collected with NSF support. These plans should cover how and where these materials will be stored, at reasonable

cost, and how access will be provided to other researchers, at their cost. Many complexities arise across the range of data collection supported by the Arctic Social Sciences Program. Therefore, such unusual circumstances and any necessary modifications or exemptions to the general policy of data sharing should be described in the OPP-awardees sharing plans.

#### **Responsibilities of Principal Investigators of OPP-Funded Awards**

Principal investigators should make their data available to all reasonable requests and where applicable the principal investigators should submit the data collected to designated data centers as soon as possible, but no later than two (2) years after the data are collected. **Data sets from Long-Term Observatories are expected to be made publicly available immediately upon collection.**

Principal investigators working in coordinated programs (multi-investigator and/or multi-agency programs) may (in consultation with the OPP program managers and other funding agencies involved) establish more stringent data submission procedures to meet the needs of these larger coordinated programs. Principal Investigators with OPP-funded awards should comply with data policies established for these coordinated programs and submit their data as required to the appropriate repository stipulated by the coordinated program office.

Compliance with the data guidelines will be considered in the program managers overall evaluation of a Principal Investigator's prior support record.

#### **Conditions for OPP Awards**

Principal Investigators of OPP-funded awards are REQUIRED to submit to appropriate electronic data directories, a description of their data (i.e. metadata) resulting from OPP-funded research in the form of a Directory Interchange Format (DIF) entry. Submission of the DIF may be at any time during the tenure of the grant. At the time of submission of the Final Report to NSF, a copy of the DIF must be sent to the cognizant program officer in OPP. Failure to provide final technical reports delays NSF review and processing of pending proposals for that Principal Investigator. Principal Investigators should examine the formats of the required reports in advance to assure availability of required data. Sample DIFs can be found on the Global Change Master Directory web page at <http://gcmd.gsfc.nasa.gov>.

Data sets from OPP supported arctic scientific research should go to the appropriate data center for the specific type of data collected. Any questions concerning this policy should be directed to the cognizant program officer in the Office of Polar Programs.

### **C. Reporting Requirements**

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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 at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report.

Failure to provide the required annual or final project reports will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. 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 FastLane, for preparation and submission of annual and final project reports. Such reports provide information on activities and findings, project participants (individual and organizational) publications; and, other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete.

Please see the [OPP Guidelines for Scientific Data \(OPP 9-91\)](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=opp991) ([http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=opp991](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=opp991)) described in Section VII. B. Award Conditions in this program solicitation for information about award conditions for data.

### **VIII. AGENCY CONTACTS**

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General inquiries regarding this program should be made to:

- Renee D. Crain, Arctic Research and Education Assistant Program Director, 755 S, telephone: (703) 292-4482, fax: (703) 292-9082, email: [rcrain@nsf.gov](mailto:rcrain@nsf.gov)

- Martin Jeffries, 740 S, telephone: (703) 292-8029, email: [mjeffrie@nsf.gov](mailto:mjeffrie@nsf.gov)
- Anna Kerttula de Echave, Arctic Social Sciences Program Director, 740 S, telephone: (703) 292-7432, fax: (703)292-9082, email: [akerttul@nsf.gov](mailto:akerttul@nsf.gov)
- Brendan P. Kelly, Arctic Natural Sciences Program Manager, 755, telephone: (703) 2927434, email: [bkelly@nsf.gov](mailto:bkelly@nsf.gov)
- Neil R. Swanberg, Arctic System Science Program Director, 755 S, telephone: (703) 292-8029, email: [nswanber@nsf.gov](mailto:nswanber@nsf.gov)
- William J. Wiseman, Arctic Natural Sciences Program Director, 740 S, telephone: (703) 292-4750, fax: (703) 292-9082, email: [wwiseman@nsf.gov](mailto:wwiseman@nsf.gov)

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: [fastlane@nsf.gov](mailto:fastlane@nsf.gov).
- Linda Izzard, Program Coordination Specialist, 755, telephone: (703) 292-7430, fax: (703) 292-9082, email: [lizzard@nsf.gov](mailto:lizzard@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](mailto:support@grants.gov).

## IX. OTHER INFORMATION

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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, MyNSF (formerly the Custom News Service) 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 Regional 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. MyNSF also is available on NSF's Website at <http://www.nsf.gov/mynsf/>.

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

## ABOUT THE NATIONAL SCIENCE FOUNDATION

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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 40,000 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 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.

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 <http://www.nsf.gov>

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center): (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**
  - Send an e-mail to: [pubs@nsf.gov](mailto:pubs@nsf.gov)
  - or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

## PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

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The National Science Foundation, 4201 Wilson Boulevard, Arlington, Virginia 22230, USA  
Tel: (703) 292-5111, FIRS: (800) 877-8339 | TDD: (800) 281-8749

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