

# International Polar Year (IPY)

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## Program Solicitation

NSF 06-534



### National Science Foundation

Office of Polar Programs

Arctic Sciences Section

Antarctic Sciences Section

Directorate for Education and Human Resources

Division of Undergraduate Education

Division of Graduate Education

Division of Elementary, Secondary and Informal Education

### Full Proposal Target Date(s):

May 01, 2006

## SUMMARY OF PROGRAM REQUIREMENTS

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### General Information

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#### Program Title:

International Polar Year (IPY)

#### Synopsis of Program:

The "International Polar Year 2007-2008" (IPY) will extend from March 2007 through March 2009. IPY is envisioned as an intense scientific campaign to explore new frontiers in polar science, improve our understanding of the critical role of the polar regions in global processes, and educate the public about the polar regions. Projects are expected to involve a pulse of activity during the IPY period; have multi- and interdisciplinary scopes; leave a legacy of infrastructure and data; expand international cooperation; engage the public in polar discovery; and help attract the next generation of scientists and engineers.

A number of NSF programs will respond to proposals for support of IPY activities over the next several years. These are listed on an IPY web page maintained by NSF's Office of Polar Programs (<http://www.nsf.gov/od/opp/ipy/ipyinfo.jsp>). This list will be updated from time to time and should be consulted when considering proposal submissions.

In anticipation of IPY, the Office of Polar Programs (OPP) and the Directorate for Education and Human Resources (EHR) have identified special emphasis areas that will require preparation in advance of IPY. These are the subject of the present focused solicitation. The research emphasis areas are: ice sheet history and dynamics; biological adaptations at the cellular and genomic level to life in extreme cold and prolonged darkness; and the arctic observing network. Proposed research activities must be integrally related to one or more of these emphasis areas and adhere to the guidance of the National Research Council's report *A Vision for the International Polar Year 2007-2008* (2005), including specific significant linkages to international activities.

The educational emphasis areas for this solicitation are: formal science education experiences for K-12 teachers and undergraduate or graduate students, informal science education for the broader public, and coordination and communication for IPY education projects. In addition to the educational activities normally integrated into research proposals, this solicitation will consider standalone proposals that specifically address one or more of these focus areas.

Proposals for IPY activities outside of these emphasis areas should be directed to other solicitations from OPP and NSF. Related programs are listed at the web site above (see also Section IX). Proposals submitted under this solicitation may be co-reviewed with other NSF programs.

#### Cognizant Program Officer(s):

- Marie H. Bundy, Biology & Medicine Associate Program Manager (IPY Life in the Cold and Dark), Office of the Director, Office of Polar Programs, 755 S, telephone: (703) 292-8033, fax: (703) 292-9079, email: [mbundy@nsf.gov](mailto:mbundy@nsf.gov)
- Renee D. Crain, Assistant Program Officer (IPY Education), Office of the Director, Office of Polar Programs, 755 S, telephone: (703) 292-4482, fax: (703) 292-9082, email: [rcrain@nsf.gov](mailto:rcrain@nsf.gov)
- Simon N. Stephenson, Research Support & Logistics Manager (IPY Arctic Observing Network and Data Management), Office of the Director, Office of Polar Programs, 755 S, telephone: (703) 292-8029, fax: (703) 292-9082, email: [sstephen@nsf.gov](mailto:sstephen@nsf.gov)
- Thomas P. Wagner, Geology & Geophysics Program Director (IPY Ice Sheet Dynamics), Office of the Director, Office of Polar Programs, 755 S, telephone: (703) 292-4746, fax: (703) 292-9079, email: [twagner@nsf.gov](mailto:twagner@nsf.gov)
- David B. Campbell, Staff Associate for the Environment (IPY K-12 Education), Directorate for Education & Human Resources, Division of Elementary, Secondary, & Informal Education, 885 S, telephone: (703) 292-5093, fax: (703) 292-9044, email: [dcampbel@nsf.gov](mailto:dcampbel@nsf.gov)
- Valentine H. Kass, Program Director (IPY Informal Science Education), Directorate for Education & Human Resources, Division of Elementary, Secondary, & Informal Education, 885 S, telephone: (703) 292-5095, fax: (703) 292-9044, email: [vkass@nsf.gov](mailto:vkass@nsf.gov)
- Daniel Litynski, Program Director (IPY Undergraduate Education), Directorate for Education & Human Resources, Division of Undergraduate Education, 835 N, telephone: (703) 292-8670, fax: (703) 292-9015, email: [dlitynsk@nsf.gov](mailto:dlitynsk@nsf.gov)
- Sonia Ortega, Program Director (IPY Graduate Education), Directorate for Education & Human Resources, Division of Graduate Education, 875 S, telephone: (703) 292-8697, fax: (703) 292-9048, email: [sortega@nsf.gov](mailto:sortega@nsf.gov)

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

- 47.076 --- Education and Human Resources
- 47.078 --- Office of Polar Programs

#### Eligibility Information

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- **Organization Limit:** None Specified.
- **PI Eligibility Limit:** None Specified.
- **Limit on Number of Proposals:** None Specified.

#### Award Information

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- **Anticipated Type of Award:** Standard or Continuing Grant or Cooperative Agreement
- **Estimated Number of Awards:** 20 to 30
- **Anticipated Funding Amount:** \$12,000,000 This amount is approximate and subject to the availability of funds. Additional funds for IPY may be allocated from all Directorates of NSF and the Office of Polar Programs in response to proposals submitted to related programs. See Section IX.

#### Proposal Preparation and Submission Instructions

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##### A. Proposal Preparation Instructions

- **Full Proposal Preparation Instructions:** This solicitation contains information that supplements the standard Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full text of this solicitation for further information.

##### B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required by NSF.
- **Indirect Cost (F&A) Limitations:** Not Applicable.

- **Other Budgetary Limitations:** Not Applicable.

## C. Due Dates

- **Full Proposal Target Date(s):**  
May 01, 2006

## Proposal Review Information

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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 "International Polar Year 2007-2008" (IPY) will extend from March 2007 through March 2009. This period commemorates the fiftieth anniversary of the 1957 International Geophysical Year (IGY) and has been designated the fourth IPY by the National Academy of Sciences (NAS), the International Council of Science (ICSU), the World Meteorological Organization (WMO), the Antarctic Treaty System and its adhering nations, the Arctic Council, and many other international

organizations. The U.S. National Committee for IPY, formed under the auspices of the NAS, has published a vision document available at <http://www.us-ipy.org/>. The ICSU-WMO Joint Committee published an additional planning framework and is facilitating international cooperation through an International Programme Office in Cambridge. Further information on international efforts and the history of the IPY is available at <http://www.ipy.org>.

The President's Office of Science and Technology Policy designated the National Science Foundation as the lead federal agency in organizing U.S.-IPY activities. This solicitation launches NSF's preparations in three emphasis areas requiring significant advance planning. Future IPY solicitations may be coordinated among participating federal agencies. For more details see the agency web sites, solicitations, and remarks in the National Research Council's report *International Polar Year 2007-2008: Report of the Implementation Workshop* (2005) and its IPY web site ([www.us-ipy.org](http://www.us-ipy.org)). Additional information is also available on the U.S. government IPY site ([www.us-ipy.gov](http://www.us-ipy.gov)), maintained by NSF.

## II. PROGRAM DESCRIPTION

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IPY is intended to be a milestone event in exploring new frontiers in polar research and improving our understanding of the critical role of polar regions in global processes. Desirable characteristics and goals of IPY projects include:

- Advance polar science by launching new initiatives.
- Be a pulse of activity that can be implemented within the IPY timeframe.
- Encompass scientific investigations that are multi- and interdisciplinary.
- Link arctic and antarctic research.
- Leave a legacy of data and/or infrastructure for polar observations.
- Develop and expand international partnerships and cooperation.
- Include comprehensive data management plans.
- Engage the public in polar discovery.
- Attract and develop the next generation of scientists and engineers.

This solicitation will consider IPY research proposals for three emphasis areas:

- Ice sheet history and dynamics
- Biological adaptations at the cellular and genomic level to life in extreme cold and prolonged darkness
- Arctic Observing Network

This solicitation will also consider IPY proposals for the following emphasis areas in education:

- Polar formal science education
- Polar informal science education: projects engaging the public
- Communication and coordination for IPY education projects

These emphasis areas address key themes identified for IPY and originate from community plans of the U.S. polar research and education programs. Each emphasis area is described in detail below. As an important contribution to the IPY legacy, data management is expected to be an integral part of all proposals, although standalone data management proposals will also be considered, as discussed below. Similarly, education may be integral to proposals as they address broader impacts, but standalone education proposals that address the above emphasis areas and meet IPY criteria are also appropriate. Education goals are described in detail below.

Collaboration and participation of U.S. organizations in foreign-led efforts within the emphasis areas are also strongly encouraged. NSF will consider proposals that are jointly submitted to this solicitation with other federal and foreign funding agencies on a case-by-case basis. Proposers must contact the cognizant program officer at NSF before submitting such a proposal.

Proposals for IPY projects outside of the emphasis areas described in this solicitation may be submitted to the Antarctic Research Opportunities program solicitation, NSF 05-567 ([http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf05567](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf05567)), the Arctic Research Opportunities program solicitation, 05-618 ([http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf05618](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf05618)), and other announcements of opportunity at NSF. (See Section IX, "Other Programs of Interest.")

### EMPHASIS AREAS FOR RESEARCH PROPOSALS

## Ice Sheet History and Dynamics

The polar ice sheets are dynamic features, intimately connected with global climate change and sea level. One example, the West Antarctic Ice Sheet, shows signs of instability due to climate change. Because this 3.2-million-square-kilometer ice sheet is grounded below sea level, warming could trigger its rapid collapse and possibly raise sea level worldwide by as much as six meters.

Understanding the relationship between ice sheet behavior and climate requires improved understanding of a broad range of subjects. This solicitation encourages proposals that address key questions about ice sheets, their dynamics, history, formation, and relationship to climate and underlying geology, and which build upon current community-wide efforts and infrastructure investments. Proposers planning to work in West Antarctica should be aware of the [West Antarctic Ice Sheet Initiative](http://igloo.gsfc.nasa.gov/wais/) (<http://igloo.gsfc.nasa.gov/wais/>) and a major aerogeophysical survey of the Amundsen Sea Embayment ( [AGASEA](http://www.ig.utexas.edu/research/projects/agasea/), <http://www.ig.utexas.edu/research/projects/agasea/>), completed in 2005. During IPY, NSF is supporting a major ice coring effort at the [West Antarctic Ice Sheet \(WAIS\) divide](http://www.dri.edu/People/kendrick/WDSprojmain.htm) (<http://www.dri.edu/People/kendrick/WDSprojmain.htm>), and a logistics hub will be available in the area to support other research. Also during IPY, there will be drilling in McMurdo Sound under the Antarctic Drilling Program, [ANDRILL](http://andrii.org/) (<http://andrii.org/>). The project's goal is to understand the history of the East Antarctic Ice Sheet and the Ross Ice Shelf. Proposers interested in marine sediments should be aware of the Antarctic Research Facility (<http://www.arf.fsu.edu/>), which houses over 25,000 meters of core from the Southern Ocean.

In the Arctic, NSF supports [Summit Camp](http://www.summitcamp.org/), located at the peak of the Greenland ice sheet (<http://www.summitcamp.org/>). Year-round operations take place to study air-snow interactions, knowledge of which is crucial for interpreting data from ice cores drilled in the area and elsewhere. NSF also provided support from 1989 to 1994 for the Greenland Ice Sheet Project Two (GISP2) to acquire paleoclimate records for the Northern Hemisphere (<http://www.gisp2.sr.unh.edu/GISP2/>). These cores and others from the Arctic and Antarctic are available at the National Ice Core Laboratory (<http://www.nicl-smo.sr.unh.edu/>).

Research that builds on these investments is particularly encouraged under this solicitation. Such research might address, but is not limited to, the following questions:

- What are the critical boundary conditions for development of comprehensive predictive models of ice sheet behavior?
- How can the new knowledge of ice flow be incorporated in prognostic models of ice sheets and used to project future changes in sea level?
- How has the volume and geographic extent of polar ice sheets varied through time?
- Can multi-source proxy records, such as those from ice and sediment cores and glacial geologic records, be integrated into a consistent history of ice sheet change?
- What processes control the behavior, such as formation, growth, fluctuation, and decay, of the polar ice sheets?
- What roles do sub-ice sheet geology and heat flow play in ice sheet behavior, and how can the critical observations be made and integrated into ice sheet models?
- What roles do ice shelves play in ice sheet and ice stream behavior?
- What triggers ice streams to turn-on or shut-off, and how will ice streams affect the major ice sheets in the next few thousand years?
- What oceanographic and meteorological processes exert control on ice sheet behavior?
- What global forcing mechanisms can be deduced from ice core records from Greenland and Antarctica?

Proposers *specifically* planning to study arctic ice sheets *in isolation from the global system* must connect their work with the [SEARCH](http://www.arcus.org/SEARCH/index.php) (<http://www.arcus.org/SEARCH/index.php>) initiative described below.

## Adaptations to Life in Extreme Cold and Prolonged Darkness

Organisms that are adapted to polar regions often exhibit unique strategies for survival in environments with extremes of low temperatures and wide ranges in annual light levels. Recent changes in climate may expose polar organisms to greater variability in temperature and irradiance than they have experienced in the past. For most polar organisms, little is known about the mechanisms that control their adaptations to environmental change at the cellular and genetic levels. New technologies (e.g., genomics, proteomics, etc.) offer the opportunity for a better understanding of organisms and the mechanisms that control their adaptations to extreme cold and prolonged darkness. This understanding is critical to our knowledge of how polar ecosystems can respond to the observed increases in climate variability in Antarctica and in the Arctic. A recent NAS report, *Frontiers in Polar Biology in the Genomics Era* (<http://books.nap.edu/catalog/10623.html>), describes the ecological relevance and research benefits of these tools of modern biology.

Historically, the major thrust of biological research in polar regions has been conducted during the austral and boreal summers. Observations and experiments that advance the understanding of organism responses to changes in light and

temperature would enhance our understanding of the role of annual cycles of cold and dark in controlling community composition and ecosystem structure.

The Long Term Ecological Research (LTER) sites at Toolik Field Station in Alaska, at Palmer Station on the Antarctic Peninsula, and in the McMurdo Dry Valleys on the antarctic continent offer the opportunity to bring these new technologies to bear in research on terrestrial, freshwater and coastal communities of the polar regions. Additionally, research ships operating in the Arctic and Southern Oceans provide access to the polar marine environment. These existing research platforms provide a unique opportunity to conduct polar and cross-polar comparisons of organism adaptations to the cold and dark.

This solicitation will support research on physiological adaptations at the cellular, molecular, and genetic levels to the extreme conditions of polar winter. Proposals should therefore examine the roles of environmental extremes in light and temperature in regulating adaptation at the cellular or genetic level to polar environments. For example,

- What are the factors that allow polar organisms to carry out basic metabolic and reproductive functions under extremely cold temperatures and prolonged darkness?
- How have environmental extremes affected the evolution and biodiversity of polar organisms?
- How do genetic adaptations to annual cycles of extreme cold and prolonged darkness control community structure and ecosystem function?

Studies that use genomic tools to reveal the basis for physiological adaptations, patterns in species diversity, and controls on ecosystem function are particularly encouraged for this solicitation.

### **Arctic Observing Network**

During the past few decades, the Arctic has experienced significant environmental changes that could have broad-reaching consequences for human populations in the form of long-term impacts on local ecosystems, as well as on global climate. These environmental changes are thought to arise from a complex interplay of physical drivers of oceanic, atmospheric and terrestrial origin and appear to be correlated with changes in the Polar Vortex and other related phenomena. It is not known, however, whether these changes are cyclical, indicating that the system may eventually return to a more familiar state, or if they represent a trend that indicates the Arctic may be moving to a new state. Similarly, the degree to which the processes underway are natural or anthropogenic in origin is not fully understood.

The Study of Environmental ARctic CHange (SEARCH) (<http://www.arcus.org/SEARCH/index.php>) has been established to study this recent and ongoing complex of interrelated pan-arctic changes. NSF is among the agencies contributing to this multi-agency effort. The SEARCH implementation plan (<http://www.arcus.org/search/meetings/2005/siw/report.php>) specifies efforts that are seen by a broad segment of the community as necessary to advance the science of SEARCH, both under IPY and on a longer-term basis.

This solicitation focuses on the efforts needed to develop and deploy a pan-Arctic observing system that will enable SEARCH by measuring the full range of continuing changes now underway. Special emphasis will be given to establishing a research-driven network of measurement systems during IPY 2007-2008, including a network of human observations and indigenous knowledge in the Arctic. Proposals to develop and implement components should be driven by science questions that underline the need for a long-term observation system. Proposers may wish to consider information contained in the SEARCH reports, as well as other observing system documents, as they begin to develop their proposals.

### **EMPHASIS AREAS FOR EDUCATION**

Educating people about the polar regions and their importance to the global system will be a significant legacy of the International Polar Year. While the integration of research and education is an important part of many research proposals, this emphasis area encourages standalone proposals that focus on science education. These science education proposals may be related to one or more of the scientific emphasis areas or may be related to other areas of polar research. Education proposals should

- address a specific target audience or audiences
- identify the need for the activity and its lasting impacts
- leverage the inherent appeal of the polar regions to teach about scientific research and the relevance of polar regions to the earth system
- engage and educate diverse and underrepresented communities
- attract and develop the next generation of polar researchers
- link scientific research with education
- enhance and create science education resources that impact a broad public audience



- have a plan for evaluating the impact of the project on the target audience

This solicitation will consider IPY education proposals in three focus areas:

1. Polar Formal Science Education: Formal education projects for K-12 teachers and students and for undergraduate or graduate students are expected to develop innovative programs that invigorate education in polar science in the context of the IPY.
  - Teacher Professional Enhancement: A goal of this solicitation is to bring K-12 educators and IPY researchers together through hands-on field experiences as members of science teams. Numerous benefits result when teachers and scientists work together on research projects, including benefits to the teacher and their classroom practice, to the researchers and science, to the students who interact with the teacher through web-based field journals and broadcasts, and to other teachers mentored by the participating teachers upon their return from the field. Proposals may be for field programs in the Arctic, Antarctic, or both, though a single proposal offering teacher enhancement experiences in both polar regions is preferred. Proposals to involve K-12 educators and classrooms in polar research in other ways (e.g., linkages between graduate students and teachers) are also encouraged.
  - Undergraduate and graduate students: Proposals to this emphasis area should focus on the education or training of students or the development of materials for students. Examples include involving students in field courses or symposia, developing courses focusing on IPY, or providing other training experiences that develop the next generation of polar scientists. Proposals to this emphasis area should not be requests for field research assistants but should contribute to innovative practices for undergraduate and/or graduate education. These proposals will likely require expertise from professionals in education as well as scientific researchers. NSF wishes to build on experiences gained through innovative projects in graduate and undergraduate training supported by existing programs such as:
    - "Graduate Teaching Fellows in K-12 Education (GK-12)" ([http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5472&org=EHR&from=home](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5472&org=EHR&from=home))
    - Integrative Graduate Research Education and Traineeships (IGERT)" ([http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=12759&org=DGE&from=home](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=12759&org=DGE&from=home))
    - "Research Experiences for Undergraduate (REU)" sites ([http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5517&from=fund](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5517&from=fund))
    - "Course, Curriculum and Laboratory Improvement (CCLI)" ([http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf05559](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf05559))
2. Polar Informal Science Education: IPY presents an opportunity to engage the public in science conducted in the polar regions through informal science education such as television, movies, museums, web sites, games, and other media. Successful projects will be expected to demonstrate strategic impact on informal science education, innovation, and collaboration as described in the "Informal Science Education" solicitation [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf06520](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf06520)
3. Coordination and Communication: The polar research and education communities recognize a need for coordination and information dissemination about IPY education activities to a broad audience. A single award in this category is anticipated to be funded and may be funded as a cooperative agreement. Proposals should clearly articulate an approach for performing IPY education coordination and communication across agencies, including both polar regions, involving scientists and educators performing IPY projects, and actively reaching a broad audience. The proposal should also address international collaboration and communication.

The following workshop reports provide background information and concepts relevant to education for IPY:

- *Arctic Science Education: Recommendations from the Working Group on Arctic Science Education to the National Science Foundation*, 2002 ([http://www.arcus.org/Education/Education\\_Report\\_02.html](http://www.arcus.org/Education/Education_Report_02.html))
- *Building Partnerships in Polar Research and Education*, 1998 ([http://www.arcus.org/Education/Education\\_Report.html](http://www.arcus.org/Education/Education_Report.html))
- *Bridging the Poles: Education Linked with Research*, 2004 ([http://www.ideo.columbia.edu/res/pi/polar\\_workshop/](http://www.ideo.columbia.edu/res/pi/polar_workshop/))
- *Poles Together: Coordinating IPY Outreach and Education*, 2005 (<http://cires.colorado.edu/education/k12/>)

## DATA MANAGEMENT AND ACCESSIBILITY

Ensuring IPY's legacy requires a strategy for dealing with the data that will be generated in the three emphasis areas for research included in this solicitation. Data management is expected to be an integral part of all proposals, as discussed under Section V.A of this solicitation. However, the program will also consider standalone proposals for data storage, access, and visualization. Proposals may relate to a single IPY project, theme, region, or combination thereof.

The Office of Polar Programs, in conformance with NSF policy (see Grant Proposal Guide - GPG, [Section VI-I](#)), 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. This policy is outlined in [Guidelines and Award Conditions for Scientific Data](#) on the OPP web site.

## INTERNATIONAL COLLABORATION

Successful proposals will include documentation showing how the proposed activity will have greater impact because of its international connections. For research projects, such documentation should include letters from the international collaborators and contact information for the governmental organizations providing the corresponding research support (these letters can be submitted in the supplementary documents section of the proposal). Education proposals that do not involve international collaborators should provide in the project description information explaining their relevance as IPY activities.

## FIELDWORK

Arctic and antarctic fieldwork during IPY will be supported through the [Arctic Research Support and Logistics program](#) ([http://www.nsf.gov/od/opp/arctic/res\\_log\\_sup.jsp](http://www.nsf.gov/od/opp/arctic/res_log_sup.jsp)) and the [U.S. Antarctic Program](#) (<http://www.nsf.gov/od/opp/prss/>), respectively. Proposers should include a justification for necessary fieldwork as part of the project description. Please see the *Antarctic Research Opportunities* program solicitation, [NSF 05-567](#) ([http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf0567](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf0567)) for details about facilities and logistics in Antarctica. Please see the *Arctic Research Opportunities* program solicitation, [NSF 05-618](#) ([http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf05618](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf05618)), and 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)) for information about conducting research in the Arctic. Proposal preparation instructions in both of these solicitations provide the full details for obtaining field support in the polar regions.

### Considerations for Proposals with Arctic Fieldwork

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](#) (<http://www.nsf.gov/od/opp/arctic/conduct.jsp>) has been developed by the Social Science Task Force of the U.S. Interagency Arctic Research Policy Committee (IARPC) and approved by IARPC in 1990. All arctic research grantees are expected to abide by these principles. Researchers may also find helpful information in the [Guidelines for Improved Cooperation between Arctic Researchers and Northern Communities](#) (<http://www.arcus.org/guidelines>).

### Considerations for Proposals with Fieldwork in Antarctica or the Southern Ocean

All proposers planning fieldwork in Antarctica or the Southern Ocean must read Sections II and V of the [Antarctic Research Solicitation](#) ([http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf05567](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf05567)), which contains detailed information on the facilities and policies of the U.S. Antarctic Program that are not included in this solicitation. Special attention must be paid to the sections on the **Antarctic Conservation Act, Environmental Protection and Waste Management, Specimens for Research**, and any permits required to comply with these policies. Additional information on the Antarctic Conservation Act (ACA) is available on the NSF web site at <http://www.nsf.gov/od/opp/antarct/aca/aca.jsp>. This page also contains links to the ACA permit form ([http://www.nsf.gov/od/opp/antarct/aca/nsf01151/aca4\\_permit.pdf](http://www.nsf.gov/od/opp/antarct/aca/nsf01151/aca4_permit.pdf)) and a list of protected antarctic sites (<http://www.cep.aq/apa/index.html>) maintained by the Committee on Environmental Protection, Antarctic Treaty.

In addition, all proposals involving fieldwork in Antarctica or the Southern Ocean must be accompanied by an Operational Requirements Worksheet, which can be created at the [Polar Ice](#) (<http://polarice.usap.gov/index.htm>) web site as described in Section V.A. of this solicitation under the heading "Antarctic or Southern Ocean Proposals Involving Fieldwork."

We anticipate developing new logistical capabilities in response to this solicitation. Researchers should clearly identify their needs, which may include equipment such as aircraft or vehicles, wireless and satellite communications networks, and other capabilities not currently available in the USAP. Researchers should also identify any requirements for fieldwork during non-traditional times of year. We also anticipate development of a logistics hub in West Antarctica, and potentially supporting fieldwork along a traverse route from McMurdo to South Pole that crosses the Transantarctic Mountains via the Leverett Glacier. International collaboration, including participation of US-organizations in foreign-led field efforts, is strongly



encouraged.

## OTHER NSF FUNDING OPPORTUNITIES

Other opportunities for IPY-related proposals exist within the National Science Foundation. See [Section IX. Other Programs of Interest](#).

## III. ELIGIBILITY INFORMATION

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The categories of proposers identified in the [Grant Proposal Guide](#) are eligible to submit proposals under this program announcement/solicitation.

## IV. AWARD INFORMATION

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OPP and EHR expect to make approximately 20-30 awards as standard or continuing grants or cooperative agreements. Award size will vary in accordance with project scope but duration is expected to be three years on average. Funding for IPY activities provided through this FY2006 solicitation is anticipated to be \$12,000,000, subject to the availability of funds. Additional funds for IPY research may be awarded by NSF Directorates in response to proposals to other related programs. See Section IX.

## V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

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### A. Proposal Preparation Instructions

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#### Full Proposal Instructions:

Proposals submitted in response to this program announcement/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).

The following instructions supplement the Grant Proposal Guide (GPG) guidelines..

#### Title

Proposal titles must include the prefix "IPY:" as an identifier.

#### Page limit

The normal 15-page limit for the Project Description specified in the GPG will be strictly enforced. However, collaborative proposals with three or more organizations may add one page to the Project Description for each organization beyond the first two. Please note that the GPG limits reporting on prior support to a single award most closely related to the proposal.

#### Relevance to IPY

All proposals must address the project's relevance to the IPY. This relevance must be

- included as a separate statement in the Project Summary, and
- developed as an integral part of the Project Description.

Proposals that fail to address IPY relevance in both sections of the proposal will be returned without review. Proposers should consult the Additional Review Criteria in Section VI.A. for details regarding IPY relevance. That section also describes the additional review criteria for education proposals, which should be addressed in the Project Description of proposals for education projects.

## Data Management

To ensure the legacy of IPY, all scientific research proposals must include a data management plan. For proposals relevant to the Study of Environmental Arctic Change (SEARCH), the requirements are very specific and listed below. All other proposals should apply these requirements as appropriate. Proposers must also adhere to the general data policy of OPP (see [Section VII. B.](#)).

Requirements for the data management plan:

- Data authors shall provide, within the first three months of the award, a metadata inventory description (a high-level summary of the data to be collected) to the relevant archive. If a community-wide data coordination service is established, the metadata must be shared with this service.
- Investigators must specify in their proposal where data will be archived. At a minimum, the proposal should include a letter of support from the specified data center.
- Investigators must specify in their proposal a person to be the data management point of contact, and who is responsible for submitting the data, metadata, and other documentation.
- Investigators must specify in their proposal which data are community data. Community data must be made available through an openly accessible data management system as soon as data are collected and verified.
- Every project must submit complete documentation and quality-controlled data to the appropriate archive in accordance with the OPP data policy (see [Section VII. B.](#)).

## Budget for Education Projects

Proposals for education projects have a suggested maximum budget of \$500,000 per year for 3 years. This suggested maximum is intended to be a helpful guideline for proposers and is not a rule. A limited number of larger budget projects are expected to be funded, pending availability of funds. Proposers are encouraged to contact the cognizant program officer in advance of submitting proposals for more than \$500,000 per year. For projects involving fieldwork, see the instructions for "Arctic Proposals Involving Fieldwork" and "Antarctic or Southern Ocean Proposals Involving Fieldwork" in this section for budget-related information.

## Arctic Proposals Involving Fieldwork

Detailed proposal preparation instructions involving arctic fieldwork are available in the solicitation [Arctic Research Opportunities](#), Section V. A. Additional information is available in the Program Description for the Arctic Research Support and logistics (RSL) program. The RSL program was created, in part, to enhance access, safety and interactions with local arctic communities. More information about the RSL program is available on the 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)).

The anticipated fieldwork should be described in the proposal for proper review of the proposal and to initiate logistics planning for successful proposals. A description of fieldwork is appropriate in a section of the proposal describing the overall project schedule. Figures showing the fieldwork area are encouraged. The Arctic Research Support and Logistics Contractor, VECO Polar Resources (VPR) (<http://www.vecopolar.com/>), can assist with logistics scoping during the proposal-writing phase for work in all locations. VPR can help direct investigators to appropriate organizations for additional information. If a third-party logistics contractor is arranging logistics, their costs should **not** be itemized or included in the project budget spreadsheet. 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. Please see the *Arctic Research Opportunities* solicitation for more detailed information about logistics support for arctic fieldwork.

Principal Investigators in the Arctic 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>.

## Antarctic or Southern Ocean Proposals Involving No Fieldwork

Proposers must complete the [Worksheet for Proposals With No Fieldwork in Antarctica](http://www.nsf.gov/od/opp/antarct/nofldwrk.doc) (<http://www.nsf.gov/od/opp/antarct/nofldwrk.doc>) and upload it as a *Single Copy Document* through FastLane. Proposals lacking this worksheet are subject to

return without review.

## Antarctic or Southern Ocean Proposals Involving Fieldwork

Proposed fieldwork must be described in the proposal at a level of detail sufficient for merit review. The costs for field support in the Antarctic should **not** be itemized or included in the project budget spreadsheet because these costs will be identified through a separate operational review process. To determine field support needs, costs and feasibility, proposers must submit a [Polar Ice](http://polarice.usap.gov/index.htm) (<http://polarice.usap.gov/index.htm>) worksheet. This worksheet captures details about the field support requirements that may not be germane to merit review but are critical to feasibility analysis. Completing the Polar Ice worksheet is substantial and must be done before the proposal is submitted. OPP recommends proposers start this process two weeks before final proposal submission. Proposals lacking these *Operational Requirements Worksheets* are subject to **return without review**.

- Prepare, but **do not yet submit**, the proposal in FastLane.
- Log on to [Polar Ice](http://polarice.usap.gov/index.htm), and apply for a new account. You will be issued a password within one business day.
- Fill out the *Operational Requirements Worksheets* (ORW). See discussion in the [Antarctic Research solicitation for more details](#). Please note that if your proposal is recommended for an award, your ORW will be used to define your field program.
- Use Polar Ice to produce a PDF version of the completed ORW.
- Upload the ORW as a *Single Copy Document* through FastLane, and submit the proposal to NSF. Please note that reviewers will not have access to the ORW file, so fieldwork information required for merit review must be included in the proposal's *Project Description*.
- Log back into Polar Ice and follow the instructions for providing the NSF proposal number.

Proposers are reminded to identify the program announcement/solicitation number (06-534) in the program announcement/solicitation block on the proposal Cover Sheet. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

## B. Budgetary Information

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### Cost Sharing:

Cost sharing is not required by NSF in proposals submitted under this Program Solicitation.

## C. Due Dates

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Proposals must be submitted by the following date(s):

### Full Proposal Target Date(s):

May 01, 2006

## D. FastLane Requirements

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Proposers are required to prepare and submit all proposals for this announcement/solicitation through the FastLane system. Detailed instructions for proposal 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 announcement/solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this announcement/solicitation.

*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. Proposers are no longer required to provide a paper copy of the signed Proposal Cover Sheet to NSF. Further instructions regarding this process are available on the FastLane Website at: <http://www.fastlane.nsf.gov>

## VI. PROPOSAL REVIEW INFORMATION

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### A. NSF Proposal Review Process

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Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program Officers charged with the oversight of the review process. NSF invites the proposer to suggest, at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

The National Science Board approved revised criteria for evaluating proposals at its meeting on March 28, 1997 ([NSB 97-72](#)). All NSF proposals are evaluated through use of the two merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

On July 8, 2002, the NSF Director issued [Important Notice 127](#), Implementation of new Grant Proposal Guide Requirements Related to the Broader Impacts Criterion. This Important Notice reinforces the importance of addressing both criteria in the preparation and review of all proposals submitted to NSF. NSF continues to strengthen its internal processes to ensure that both of the merit review criteria are addressed when making funding decisions.

In an effort to increase compliance with these requirements, the January 2002 issuance of the GPG incorporated revised proposal preparation guidelines relating to the development of the Project Summary and Project Description. Chapter II of the GPG specifies that Principal Investigators (PIs) must address both merit review criteria in separate statements within the one-page Project Summary. This chapter also reiterates that broader impacts resulting from the proposed project must be addressed in the Project Description and described as an integral part of the narrative.

Effective October 1, 2002, NSF will return without review proposals that do not separately address both merit review criteria within the Project Summary. It is believed that these changes to NSF proposal preparation and processing guidelines will more clearly articulate the importance of broader impacts to NSF-funded projects.

The two National Science Board approved merit review criteria are listed below (see the [Grant Proposal Guide](#) Chapter III.A for further information). 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 he/she is qualified to make judgments.

#### **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 and original 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?

NSF staff 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:**

Proposals will also be evaluated using additional review criteria that consider: (A) relevance to the goals of the International Polar Year 2007-2008 (IPY), (B) operational feasibility, and (C) joint support from international partners and other federal agencies.

Proposers are also encouraged to review the U.S. National Committee and ICSU-WMO planning documents available at <http://www.us-ipy.org/> and <http://www.ipy.org>.

**A. Relevance to the goals of the International Polar Year (IPY)**

Science proposals will be evaluated to assess the degree that the proposed activity will

- address science questions consistent with the emphasis areas described in this solicitation. Proposals that do not address the emphasis areas will be returned without review.
- contribute to international collaborations or partnerships.
- address science and/or education in one or both polar regions, linking arctic and antarctic efforts where appropriate.
- provide open and timely access to data and products that will contribute to the legacy of IPY.
- provide meaningful education and training for beginning scientists, teachers, students, or the broader public within the context of the solicitation's emphasis areas.
- address outreach activities that engage the public in polar discovery and communicate research to school children and arctic communities, as well as policy makers, and the general public.
- maximize effective use of existing logistical assets or develop new capabilities that are feasible within the IPY timeframe.
- involve the communities near field sites and engage arctic residents in meaningful ways (arctic studies only).

Proposals focusing on IPY Education, will be evaluated according to the following criteria:

1. Polar Formal Science Education

- Teacher Professional Enhancement projects should
  - provide hands-on field research experience that can be realistically implemented in the polar regions
  - broadly disseminate teacher experiences to students and other professionals
  - develop a sustainable learning community
  - provide clear and appropriate measures of project success
- Undergraduate and Graduate Formal Education projects should include
  - innovative project deliverables that demonstrate meaningful education and training in the polar sciences
  - goals and measurable outcomes that are defined and appropriate
  - broad dissemination of programmatic innovation to students and other professionals
  - development of a sustainable learning community
  - an appropriate evaluation plan

2. Polar Informal Science Education projects should include

- innovative deliverables that enhance science learning
- project design including project personnel and partnerships appropriate to addressing IPY goals
- identification of target audiences, demonstrating knowledge of the audiences, their needs and interests
- clear and appropriate measures of project success

3. Coordination and Communication projects should include

- identification of appropriate partners and approach for coordinating education projects and communications about those projects
- identification of target audiences and modes of communication

- clear and appropriate measures of project success

## B. Operational feasibility for proposals involving fieldwork

Proposals involving fieldwork will also be evaluated for operational feasibility, which includes resource availability, environmental protection and waste management provisions, safety and health measures, and safeguards of radioactive materials. Proposers must recognize that proposals may be declined for operational reasons. For proposals involving fieldwork in the Antarctic, this operational evaluation is based largely on the [Operational Requirements Worksheets](#) that the proposer must complete as instructed in [Section V](#) (Proposal Preparation and Submission Instructions) of the Antarctic Research solicitation.

Safety and health requirements vary for antarctic and arctic fieldwork. All antarctic field participants must meet specified U.S. Antarctic Program health and dental requirements. See [Section V.B.](#), (Budget preparation) of the Antarctic Research solicitation. Candidates for wintering at the year-round stations are screened for psychological fitness.

For arctic field participants, physicals are required for participation on all research cruises and for deployment to Summit Field Camp in Greenland and other remote areas, such as camps in Greenland and the North Pole.

## C. Joint support from international partners and other federal agencies

International collaborative proposals, especially when joint fieldwork is involved, as well as proposals that involve other US federal agencies require special efforts for coordination between the sponsoring organizations. NSF will engage potential partner organizations as required to determine project feasibility prior to making awards.

### Additional information on the Broader Impacts review criterion

The polar regions present exceptional opportunities to address NSF's "Broader Impacts" review criterion. The Foundation's Advisory Committee for Polar Research has produced a [document](http://www.nsf.gov/od/opp/opp_advisory/oaccrit2.jsp) ([http://www.nsf.gov/od/opp/opp\\_advisory/oaccrit2.jsp](http://www.nsf.gov/od/opp/opp_advisory/oaccrit2.jsp)) on this criterion that may aid in proposal preparation. Other Foundation programs that may assist in achieving broader impact are the Antarctic Artists and Writers Program (<http://www.nsf.gov/od/opp/aawr.jsp>; NSF solicitation for the Antarctic Artists and Writers program, NSF 04-558, [http://www.dev.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=12783&org=OPP](http://www.dev.nsf.gov/funding/pgm_summ.jsp?pims_id=12783&org=OPP)), which deploys humanities scholars to the Antarctic, and the annual program for [media representatives](http://www.nsf.gov/news/news_summ.jsp?cntn_id=100288) ([http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=100288](http://www.nsf.gov/news/news_summ.jsp?cntn_id=100288)).

## B. Review Protocol and Associated Customer Service Standard

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All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement/solicitation will be reviewed by Ad Hoc 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.

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 Director. In addition, the proposer will receive an explanation of the decision to award or decline funding.

NSF is striving to be able to tell proposers whether their proposals have been declined or recommended for funding within six months. The time interval begins on the closing date of an announcement/solicitation, or the date of proposal receipt, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

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.

## VII. AWARD ADMINISTRATION INFORMATION

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### A. Notification of the Award

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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 Division 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.A. 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 (NSF-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 agreement awards are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC). Electronic mail notification is the preferred way to transmit NSF awards to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

Consistent with the requirements of OMB Circular A-16, *Coordination of Geographic Information and Related Spatial Data Activities*, and the Federal Geographic Data Committee, all NSF awards that result in relevant geospatial data must be submitted to Geospatial One-Stop in accordance with the guidelines provided at: [www.geodata.gov](http://www.geodata.gov).

More comprehensive information on NSF Award Conditions is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Website at [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpm](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpm). The GPM is also for sale through the Superintendent of Documents, Government Printing Office (GPO), Washington, DC 20402. The telephone number at GPO for subscription information is (202) 512-1800. The GPM may be ordered through the GPO Website at <http://www.gpo.gov/>.

\*These documents may be accessed electronically on NSF's Website at <http://www.nsf.gov/awards/managing/>. Paper copies of these documents may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [pubs@nsf.gov](mailto:pubs@nsf.gov).

#### Special Award Conditions:

##### Arctic Research Principles of Conduct

Principal Investigators in the Arctic are expected to follow the "Principles for the Conduct of Research in the Arctic," listed at <http://www.nsf.gov/od/opp/arctic/conduct.jsp>.

##### Data

The Office of Polar Programs, in conformance with NSF policy, requires submission of data, derived data products, samples, physical collections, and other supported materials to national data centers and other specified repositories. OPP expects investigators to share these things with other researchers at no more than incremental cost and within a reasonable time. Investigators should use national and international standards to the greatest extent possible for collection, processing, and communication of OPP-sponsored data sets. **Data sets from Long-Term Observatories are expected to be publicly available immediately upon collection.**

For further details on this policy, please see [Guidelines and Award Conditions for Scientific Data](#).

**Antarctic Bibliography.** The NSF-funded [Antarctic Bibliography](#) is the world's most complete bibliography of antarctic scientific literature. Please [send the Bibliography one copy](#) of every publication developed under antarctic awards, labeled with the award number, to assure its citation in this valuable reference tool. Doing so will waive the requirement stated in Article 20, [Grant General Conditions](#), to provide electronic or paper copies to NSF.

## C. Reporting Requirements

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For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

Please see the Guidelines for Scientific Data under [Section VII. B. Award Conditions](#) in this program solicitation for information about award conditions for data.

Within 90 days after the expiration of an award, the PI also is required to submit a final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for the PI and all Co-PIs. 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. This system permits electronic submission and updating of project reports, including information on project participants (individual and organizational), activities and findings, 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.

## VIII. CONTACTS FOR ADDITIONAL INFORMATION

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General inquiries regarding this program should be made to:

- Marie H. Bundy, Biology & Medicine Associate Program Manager (IPY Life in the Cold and Dark), Office of the Director, Office of Polar Programs, 755 S, telephone: (703) 292-8033, fax: (703) 292-9079, email: [mbundy@nsf.gov](mailto:mbundy@nsf.gov)
- Renee D. Crain, Assistant Program Officer (IPY Education), Office of the Director, Office of Polar Programs, 755 S, telephone: (703) 292-4482, fax: (703) 292-9082, email: [rcrain@nsf.gov](mailto:rcrain@nsf.gov)
- Simon N. Stephenson, Research Support & Logistics Manager (IPY Arctic Observing Network and Data Management), Office of the Director, Office of Polar Programs, 755 S, telephone: (703) 292-8029, fax: (703) 292-9082, email: [sstephen@nsf.gov](mailto:sstephen@nsf.gov)
- Thomas P. Wagner, Geology & Geophysics Program Director (IPY Ice Sheet Dynamics), Office of the Director, Office of Polar Programs, 755 S, telephone: (703) 292-4746, fax: (703) 292-9079, email: [twagner@nsf.gov](mailto:twagner@nsf.gov)
- David B. Campbell, Staff Associate for the Environment (IPY K-12 Education), Directorate for Education & Human Resources, Division of Elementary, Secondary, & Informal Education, 885 S, telephone: (703) 292-5093, fax: (703) 292-9044, email: [dcampbel@nsf.gov](mailto:dcampbel@nsf.gov)
- Valentine H. Kass, Program Director (IPY Informal Science Education), Directorate for Education & Human Resources, Division of Elementary, Secondary, & Informal Education, 885 S, telephone: (703) 292-5095, fax: (703) 292-9044, email: [vkass@nsf.gov](mailto:vkass@nsf.gov)
- Daniel Litynski, Program Director (IPY Undergraduate Education), Directorate for Education & Human Resources, Division of Undergraduate Education, 835 N, telephone: (703) 292-8670, fax: (703) 292-9015, email: [dlitynsk@nsf.gov](mailto:dlitynsk@nsf.gov)
- Sonia Ortega, Program Director (IPY Graduate Education), Directorate for Education & Human Resources, Division of Graduate Education, 875 S, telephone: (703) 292-8697, fax: (703) 292-9048, email: [sortega@nsf.gov](mailto:sortega@nsf.gov)

Scientific inquiries can also be directed to the individual program officers in OPP. OPP staff in Antarctic Sciences Section can be found at [http://www.nsf.gov/staff/sub\\_div.jsp?org=OPP&orgId=287](http://www.nsf.gov/staff/sub_div.jsp?org=OPP&orgId=287), and OPP staff in Arctic Sciences Section can be found at [http://www.nsf.gov/staff/sub\\_div.jsp?org=OPP&orgId=284](http://www.nsf.gov/staff/sub_div.jsp?org=OPP&orgId=284). Additional EHR staff can be found at [http://www.nsf.gov/staff/staff\\_list.jsp?org=EHR](http://www.nsf.gov/staff/staff_list.jsp?org=EHR).

For questions related to the use of FastLane, contact:

- Desiree Marshall Program Coordination Specialist, Office of the Director, Office of Polar Programs, telephone: (703) 292-8033, fax: (703) 292-9079, email: [ant2004@nsf.gov](mailto:ant2004@nsf.gov)

- Linda Izzard, Program Coordination Specialist, Office of the Director, Office of Polar Programs, 740 S, telephone: (703) 292-7430, fax: (703) 292-9082, email: [lizzard@nsf.gov](mailto:lizzard@nsf.gov)

## IX. OTHER PROGRAMS OF INTEREST

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The NSF *Guide to Programs* is a compilation of funding for research and education in science, mathematics, and engineering. The NSF *Guide to Programs* is available electronically at <http://www.nsf.gov/cgi-bin/getpub?gp>. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year programs occurring after press time for the *Guide to Programs* will be announced in the NSF *E-Bulletin*, which is updated daily on the NSF Website at <http://www.nsf.gov/home/ebulletin>, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's *MyNSF News Service* (<http://www.nsf.gov/mynsf/>) to be notified of new funding opportunities that become available.

Several programs within the Office of Polar Programs and other NSF research directorates will consider proposals for activities related to IPY. A list of these programs is maintained on OPP's IPY web site ([www.nsf.gov/od/opp/ipy/ipyinfo.jsp](http://www.nsf.gov/od/opp/ipy/ipyinfo.jsp)). This web page also contains a list of program officers that serve as points of contact within the NSF research directorates and offices for IPY activities.

## ABOUT THE NATIONAL SCIENCE FOUNDATION

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The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Awardees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF, although some programs may have special requirements that limit eligibility.

*Facilitation Awards for Scientists and Engineers with Disabilities* (FASSED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the GPG Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

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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