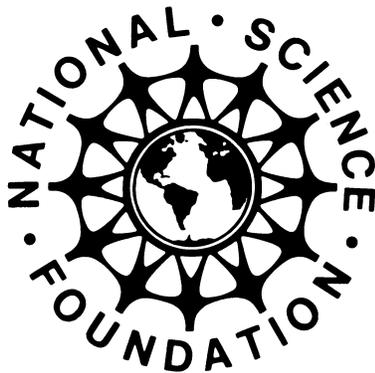


Contaminant Behavior and Impact in Northern Polar Regions



OFFICE of POLAR PROGRAMS
DIRECTORATE for GEOSCIENCES
DIRECTORATE for BIOLOGICAL SCIENCES
DIRECTORATE for SOCIAL, BEHAVIORAL
AND ECONOMIC SCIENCE
DIRECTORATE for MATHEMATICAL AND
PHYSICAL SCIENCES

Program Solicitation NSF 99-97

DEADLINE DATE PROPOSAL RECEIPT: May 7, 1999



NATIONAL SCIENCE FOUNDATION

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SUMMARY OF PROGRAM REQUIREMENTS

GENERAL INFORMATION

Program Name: Contaminant Behavior and Impact in Northern Polar Regions

Short Description/Synopsis of Program: The goal of *Contaminant Behavior and Impact in Northern Polar Regions* is to encourage research on the physical and biological routes, rates, and reservoirs of Arctic contaminants that will develop baselines and define parameters for natural systems. This research will provide a better understanding of the behavior of contaminants among the Arctic's atmospheric, marine, terrestrial and estuarine systems and their impact on human populations and ecosystems.

Cognizant Program Officer: Dr. Jane Dionne, Program Officer, Room 755, Office of Polar Programs (OPP) telephone (703) 306-1029, e-mail: jdionne@nsf.gov.

Applicable Catalog of Federal Domestic Assistance (CFDA) No.:

- 47.078 Polar Programs
- 47.050 Geosciences
- 47.074 Biological Sciences
- 47.075 Social, Behavioral, and Economic Sciences
- 47.049 Mathematical and Physical Sciences

ELIGIBILITY

- PI eligibility limitations: See **Grant Proposal Guide (GPG), NSF-99-2** for general eligibility requirements.

AWARD INFORMATION

- Type of award anticipated: **Standard Grant**
- Number of awards anticipated in FY 99: **15-25 awards, with the award size ranging approximately \$100,000-\$150,000 per year.**
- Amount of funds available: **Approximately \$3.5 million will be available for this initiative in FY 1999**
- Anticipated date of awards: **September 1999**

PROPOSAL PREPARATION & SUBMISSION INSTRUCTIONS

Proposal Preparation Instructions

- Letter of Intent requirements: **None**
- Preproposal requirements: **None**
- Proposal preparation instructions: **Standard NSF Grant Proposal Guide (NSF 99-2) instructions**
- Supplemental proposal preparation instructions: **Arctic Logistics Form must accompany all proposals requesting fieldwork. This form is available on the OPP Web page in the Arctic Research Program**

Solicitation (NSF 98-72) (<http://www.nsf.gov/pubs/1998/nsf9872/nsf9872.htm>). NSF-UNOLS Ship Time Request Form must accompany all proposals requesting ship time (available on Web page: <http://www.geo.nsf.gov/oce/sreqform.html>). These forms should be mailed under separate cover with the original signed copies of the proposal.

- Deviations from standard (GPG) proposal preparation instructions: **None other than above.**

Budgetary Information

- cost-sharing/matching requirements: **not required and will not be a factor in the review process.**

FastLane Requirements

- March 8, 1999 FastLane proposal preparation requirements: **FastLane use optional**
- FastLane point of contact: **Sarita Rich, OPP FastLane Representative, telephone: (703) 306-1033, e-mail: srich@nsf.gov , FastLane User Support, (703) 306-1142, fastlane@nsf.gov**
- **Deadline/Target Dates**
 - Full Proposal Deadline: **5:00 PM, ET, May 7, 1999, for receipt of paper and 5:00 PM, local time for FastLane materials.**

PROPOSAL REVIEW INFORMATION

- Merit Review Criteria: **Standard National Science Board approved criteria. For a more detailed explanation, see Merit Review Criteria, p. 6.**

AWARD ADMINISTRATION INFORMATION

- Grant Award Conditions: **GC-1 or FDP III**
- Special grant conditions anticipated: **Field logistics and support may require special handling.**
- Special reporting requirements anticipated: **None**

INTRODUCTION

The goal of *Contaminant Behavior and Impact in Northern Polar Regions* is to encourage research on the physical, chemical and biological processes that sequester and disperse contaminants in Arctic natural systems and on the socio-economic impacts and human responses to such contaminants. Quantification of these processes for a variety of contaminants, including heavy metals, radionuclides, persistent organic pollutants (e.g., pesticides, industrial chemicals), hydrocarbons, ozone (and precursors), and aerosols derived from various parts of the Arctic and other United States, European, and Former Soviet Union sites, is fundamental to appreciating and mitigating their impact on human physical and socioeconomic systems. Research supported through this activity will facilitate development of a multi-faceted perspective and predictive understanding that will contribute to the knowledge base used by management and policy decision-makers in planning, development, pollution avoidance, remediation, and March 8, 1999 restoration activities.

PROGRAM DESCRIPTION

NSF encourages proposals that address the physical, chemical, and biological behavior and human impact of contaminants within the Arctic's air, water, land, ice, sediment, and biotic components. Such research may focus on one component or may address complex interdependencies among the physical, biological, chemical, or human systems. Proposers are encouraged to develop fundamental science questions, including those that will contribute to the development of increasingly comprehensive models of large-scale Arctic physical phenomena. Also of interest are projects that leverage previous investments. For example, research projects conducted for up to twenty years in the Toolik Lake and Kuparuk River regions provide long-term records of environmental parameters. Additionally, lake cores with high-resolution paleoclimate records collected throughout the Arctic region are available for contaminant studies. Research projects should seek, where appropriate, to involve indigenous peoples in the design and implementation of research and to take into account the impact of contaminant behavior on human populations and the impact of people's behavior on contaminants. Because northern Arctic communities have already noted the presence and effects of contaminants on subsistence foods, research might also build upon the observations and concerns of these communities. NSF seeks a fundamental basic science approach that can support more applied efforts. **This NSF activity is not an appropriate venue for initiation of long-term environmental monitoring programs or for epidemiological or toxicological research, especially that involving human subjects.** All research projects must be conducted in accordance with the *Principles for the Conduct of Research in the Arctic*, which was prepared by the Social Science Task Force of the U.S. Interagency Arctic Research Policy Committee (IARPC) on June 28, 1990 (see Appendix 1, Arctic Research Program Opportunities, NSF 98-72) (<http://www.nsf.gov/pubs/1998/nsf9872/nsf9872.htm>).

Selected examples of research areas suitable for study under this initiative follow:

- transport pathways, including contaminant focusing zones and sediment sequestration processes
- estuarine transport
- ocean transport processes, including ice transport and release in melting zones
- relative importance of various transport processes among the air, water, land, ice, sediment and biotic systems
- influence of unique Arctic conditions (e.g., temperature, light, snow/ice) on the transformation, deposition, and fate of contaminants
- impact on transport of molecular-scale interactions involving microbes, inorganic and organic compounds, and colloids
- natural and anthropogenic factors affecting chemical sorption and bioavailability of contaminants in natural systems
- biomagnification of contaminants in marine and terrestrial food chains and the dynamics of change in contaminant concentrations
- effects of combined contaminants on biota, both at the individual and the ecosystem level
- influence of UV-B on contaminant behavior in aquatic environments
- development of novel chemical methods, tools or sensors for determining contaminant levels in polar conditions
- socioeconomic impacts of contaminants on marine and terrestrial resources and the impact on human communities
- risk perception and risk assessment for environmental contaminants

- ❑ the role of traditional knowledge in contaminant studies
- ❑ transport and transformations of atmospheric contaminants leading to deterioration of Arctic air quality.

ELIGIBILITY

- PI eligibility limitations: **See Grant Proposal Guide (GPG), NSF-99-2 for general eligibility requirements.**

AWARD INFORMATION

Under this solicitation, NSF solicits proposals for research projects with a duration of up to three years. Award sizes and durations will vary. Approximately \$3.5 million will be available for this initiative in FY99. Anticipated date of awards: September 1999. The number of awards anticipated in FY99 is about 15-25 awards, with the award size ranging from approximately \$100,000-\$150,000 per year.

PROPOSAL PREPARATION & SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *Grant Proposal Guide (GPG)*, NSF 99-2. The complete text of the GPG (including electronic forms) is available electronically on the NSF Web site at: <http://www.nsf.gov>. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (301) 947-2722 or, by e-mail from pubs@nsf.gov.

Proposers are reminded to identify the program as Arctic Contaminants and the program solicitation number (NSF 99-97) in the program announcement/solicitation block on the NSF Form 1207, "*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.

B. Proposal Due Dates

For paper submission of proposals, the paper copies of the proposal **MUST** be received by 5:00 PM, ET, May 7, 1999. Fifteen copies of the proposal must be made and submitted to NSF according to the normal procedures for paper proposals identified in the GPG. All paper submissions must be addressed and mailed to:

Solicitation No. NSF – 99-97
National Science Foundation PPU
4201 Wilson Blvd. P-60
Arlington VA 22230

For electronic submission of proposals via the NSF FastLane, the proposal **MUST** be submitted by 5:00 PM local time, May 7, 1999. Copies of the signed proposal cover sheet must be submitted in accordance with the instructions identified below.

Submission of Signed Cover Sheets. For proposals submitted electronically via the NSF FastLane Project, the signed proposal Cover Sheet (NSF Form 1207) should be forwarded to the following address and received by NSF within five working days after May 7, 1999:

National Science Foundation
DIS-FastLane Cover Sheet
4201 Wilson Blvd.
Arlington, VA 22230

A proposal may not be processed until the complete proposal (including signed Cover Sheet) has been received by NSF. Send Arctic Logistics Requirements forms with the original signed copy of the cover sheet by mail.

C. FastLane Requirements

The NSF FastLane system is available for electronic preparation and submission of a proposal through the Web at the FastLane Web site at <<http://www.fastlane.nsf.gov>>. The Sponsored Research Office (SRO or equivalent) must provide a FastLane Personal Identification Number (PIN) to each Principal Investigator (PI) to gain access to the FastLane "Proposal Preparation" application. PIs who have not submitted a proposal to NSF in the past must contact their SRO to be added to the NSF PI database. This should be done as soon as the decision to prepare a proposal is made. FastLane does not currently print color figures.

In order to use NSF FastLane to prepare and submit a proposal, the following are required:

Browser (must support multiple buttons and file upload)

- Netscape 3.0 or greater
- Microsoft Internet Explorer 4.01 or greater

PDF Reader (needed to view/print forms)

- Adobe Reader 3.0 or greater

PDF Generator (needed to create project description)

- Adobe Acrobat 3.01 or greater
- Aladdin Ghostscript 5.10 or greater

A list of registered institutions and the FastLane registration form are located on the FastLane Web page.

For paper submission of proposals, please be sure to include the program solicitation number (NSF 99-97), Arctic Contaminants, on the cover sheet.

PROPOSAL REVIEW INFORMATION

A. Merit Review Criteria

Review of proposals submitted to NSF are solicited from reviewers 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. Special care is taken to ensure that reviewers have no immediate and obvious conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority serving institutions, adjacent disciplines to that principally addressed in the proposal, etc.

Proposals will be reviewed against the following general merit review criteria established by the National Science Board. Following each criterion are potential considerations that the reviewer may employ in the evaluation. These are suggestions and not all will apply to any given proposal. Each reviewer will be asked to address only those that are relevant to the proposal 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 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 (i.e., 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?

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 learner perspectives. PIs should address this issue in their proposal to provide reviewers with the information necessary to respond fully to both NSF merit review criteria. NSF staff will give it careful consideration in making funding decisions.

Integrating Diversity into NSF Program, 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. PIs should address this issue in their proposal to provide reviewers with the information necessary to respond fully to both NSF merit review criteria. NSF staff will give it careful consideration in making funding decisions.

B. Merit Review Process

Most the proposals submitted to NSF are reviewed by mail review, panel review, or some combination of mail and panel review. Proposals submitted in response to this solicitation will be reviewed by a combination of panel and mail review.

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in a particular field represented by the proposal. Reviewers will be asked to formulate a recommendation to support or decline teach proposal. A program officer assigned to manage the proposal's review will consider the advice of reviewers and/or panelists and will formulate a recommendation. In most cases, proposers will be contacted by the program officer after his or her recommendation to award or decline funding has been approved by his or her supervisor or the division director. Informal notification of an award is not a guarantee of an eventual award. NSF will be able to tell applicants whether their proposals have been declined or recommended for funding within six months for 95 percent of proposals in this category. The time interval begins on the proposal deadline or target date or from the date of receipt, if deadlines or target dates are not used by the program. The interval ends when the division director accepts the program officer's recommendation.

In all cases, after final programmatic approval has been obtained, the recommendation then goes 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 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 Officer does so at its own risk.

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 Division administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator.

B. Grant Award Conditions

An NSF grant consists of: (1) the award letter, which includes any special provisions applicable to the grant 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 grant conditions, such as Grant General Conditions (NSF GC- 1)* or Federal Demonstration Partnership (FDP) Terms and Conditions* and (5) any NSF brochure, program guide, announcement, or other NSF issuance that may be incorporated by reference in the award letter. Electronic mail notification is the preferred way to transmit NSF grants to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

* These documents may be accessed electronically on NSF's Web site at: <http://www.nsf.gov>. Paper copies may be obtained from the NSF Publications Clearinghouse telephone 301.947.2722 or by e-mail from pubs@nsf.gov.

More comprehensive information on NSF Award Conditions is contained in the *NSF Grant Policy Manual* (GPM) Chapter 11, (NSF 95-26) available electronically on the NSF Web site. The GPM also is available in paper copy by subscription from the Superintendent of Documents, Government Printing Office, Washington, DC 20402. The GPM may be ordered through the GPO Web site at: <http://www.gpo.gov>.

C. Polar Programs data policy

The Office of Polar Programs requires submission of OPP-supported data, derived data products, samples, physical collections, and other supported materials to national data centers and other specified repositories. It expects investigators to share these things with other researchers at no more than incremental cost and within a reasonable time. The office also considers metadata (information about data or data sets) as vital to the exchange of information on polar research; archives of OPP-supported projects should include easily accessible information about the holdings including quality assessments, supporting ancillary information, and guidance for locating and obtaining the data. Investigators should use national and international standards to the greatest extent possible for collection, processing, and communication of OPP-sponsored data sets. See the Office of Polar Programs Guidelines and Award Conditions for Scientific Data at <http://www.nsf.gov/cgi-bin/getpub?opp991>.

D. Reporting Requirements

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.

Within 90 days after expiration of a grant, the PI also is required to submit a final project report. Approximately 30 days before expiration, NSF will send a notice to remind the PI of the requirement to file the final project report.

Failure to provide final technical reports delays NSF review and processing of pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

NSF has implemented a new electronic project reporting system, available through FastLane, which 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. Reports will

continue to be required annually and after the expiration of the grant, but PIs will not need to re-enter information previously provided, either with the proposal or in earlier updates using the electronic system.

Effective October 1, 1998, PIs are required to use the new reporting format for annual and final project reports. PIs are strongly encouraged to submit reports electronically via FastLane. For those PIs who cannot access FastLane, paper copies of the new report formats may be obtained from the NSF Clearinghouse as specified above. NSF expects to require electronic submission of all annual and final project reports via FastLane beginning in October, 1999.

E. New Awardee Information

If the submitting organization has never received an NSF award, it is recommended that the organization's appropriate administrative officials become familiar with the policies and procedures in the *NSF Grant Policy Manual* which are applicable to most NSF awards. The "Prospective New Awardee Guide" (NSF 97-100) includes information on: Administration and Management Information; Accounting System Requirements and Auditing Information; and Payments to Organizations with Awards. This information will assist an organization in preparing documents that NSF requires to conduct administrative and financial reviews of an organization. The guide also serves as a means of highlighting the accountability requirements associated with Federal awards. This document is available electronically on NSF's Web site at: <http://www.nsf.gov/cgi-bin/getpub?nsf97100>.

CONTACTS FOR ADDITIONAL INFORMATION

General inquiries should be made to Dr. Jane Dionne, Program Officer, Office of Polar Programs (OPP), Room 755 National Science Foundation, Arlington, VA 22230, telephone (703) 306-1029. e-mail: jdionne@nsf.gov. For questions related to use of FastLane, contact, Sarita Rich OPP Fastlane Representative, (703) 306-1033, email: srich@nsf.gov, FastLane User Support, (703) 306-1142, fastlane@nsf.gov

OTHER PROGRAMS OF INTEREST

The *NSF Guide to Programs* is a compilation of funding opportunities for research and education in science, mathematics, and engineering. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter. Beginning in fiscal year 1999, the *NSF Guide to Programs* will be only available electronically at <http://www.nsf.gov/cgi-bin/getpub?nsf994>. Many NSF programs offer announcements concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices listed in Appendix A of the GPG.

Any changes in NSF's fiscal year programs occurring after press time for the *NSF Guide to Programs* will be announced in the NSF E-Bulletin, available electronically on the NSF website at: <http://www.nsf.gov/home/ebulletin>. Subscribers can also sign up for NSF's Custom News Service to find out what funding opportunities are available.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Grantees 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 (unless otherwise specified in the eligibility requirements for a particular program).

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 program announcement or contact the program coordinator at (703) 306-1636.

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 regarding NSF programs, employment, or general information. TDD may be accessed at (703) 306-0090 or through FIRS on 1-800-877-8339.

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the review process; to applicant institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies needing information as part of the review process or in order to coordinate programs; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Reports Clearance Officer; Information Dissemination Branch, DAS; National Science Foundation; Arlington, VA 22230.

YEAR 2000 REMINDER

In accordance with Important Notice No. 120 dated June 27, 1997, Subject: Year 2000 Computer Problem, NSF awardees are reminded of their responsibility to take appropriate actions to ensure that the NSF activity being supported is not adversely affected by the Year 2000 problem. Potentially affected items include: computer systems,

databases, and equipment. The National Science Foundation should be notified if an awardee concludes that the Year 2000 will have a significant impact on its ability to carry out an NSF funded activity. Information concerning Year 2000 activities can be found on the NSF web site at <http://www.nsf.gov/oirm/y2k/start.htm> .

Catalogue of Federal Domestic Assistance (CFDA) No.:

- 47.078 Polar Programs
- 47.050 Geosciences
- 47.074 Biological Sciences
- 47.075 Social, Behavioral, and Economic Sciences
- 47.049 Mathematical and Physical Sciences

OMB No.: 3145-0058