

Global Learning and Observations to Benefit the Environment (GLOBE)

Integrated Earth Systems Science Program (IESSP)

Program Solicitation

NSF 06-515

Replaces Document NSF 02-013



National Science Foundation
Directorate for Geosciences

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

March 08, 2006

REVISIONS AND UPDATES

The GLOBE solicitation is being revised to clarify how Federal agencies can submit proposals, since they cannot submit them via Grants.gov or the NSF FastLane system. Federal agencies should contact one of the cognizant Program Officers before preparing a proposal for submission. (See Chapter I, Section E.7 of the Grant Proposal Guide.)

The following revisions and updates were in the previous version of NSF 06-515:

In furtherance of the President's Management Agenda, in Fiscal Year 2006, NSF has identified programs that will offer proposers the option to utilize Grants.gov to prepare and submit proposals, or will require that proposers utilize [Grants.gov](http://www.grants.gov) to prepare and submit proposals. [Grants.gov](http://www.grants.gov) provides a single Government-wide portal for finding and applying for Federal grants online. A complete listing of these programs is available on the Policy Office website at: <http://www.nsf.gov/bfa/dias/policy>.

In response to this program solicitation, proposers may opt to submit proposals via Grants.gov or via the NSF FastLane system (see revision above for Federal Employee submission). In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

- A. Collaborative Proposals. All collaborative proposals must be submitted via the NSF FastLane system. This includes collaborative proposals submitted:
- by one organization (and which include one or more subawards); or
 - as separate submissions from multiple organizations.

Proposers are advised that collaborative proposals submitted in response to this Program Solicitation via Grants.gov will be requested to be withdrawn and proposers will need to resubmit these proposals via FastLane. (Chapter II, Section D.3 of the Grant Proposal Guide provides additional information on collaborative proposals.)

- B. All Other Types of Proposals That Contain Subawards. All other types of proposals that contain one or more subawards also must be submitted via the NSF FastLane system.

This solicitation replaces [NSF 02-013](#), Global Learning and Observations to Benefit the Environment (GLOBE). The current solicitation differs from [NSF 02-013](#) in that it solicits proposals from teams that will

link major NSF/NASA funded programs to the extensive GLOBE network.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Global Learning and Observations to Benefit the Environment (GLOBE)
Integrated Earth Systems Science Programs (IESSP)

Synopsis of Program:

This program will facilitate reform in geoscience education by funding programs that connect the work of scientists to the practice of teaching and learning science in the classroom. To achieve this goal, the National Science Foundation (NSF) is seeking to establish new partnerships between GLOBE program participants and scientists associated with Integrated Earth Systems Science Programs (IESSP), defined as major NSF- or NASA-funded research programs related to Earth system science. This solicitation seeks proposals from IESSP teams for projects that can be used to facilitate inquiry-based investigations of the environment and the Earth systems via the GLOBE program.

Cognizant Program Officer(s):

- Jill Leslie Karsten, Program Director for Diversity and Education, Directorate for Geosciences, 705 N, telephone: (703) 292-8500, fax: (703) 292-9042, email: jkarsten@nsf.gov
- Paul E. Filmer, Program Director, Directorate for Geosciences, Division of Earth Sciences, 785 S, telephone: (703) 292-7859, fax: (703) 292-9025, email: pfilmer@nsf.gov

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

- 47.050 --- Geosciences

Eligibility Information

• Organization Limit:

Proposals will be accepted from U.S. colleges, universities, agencies, professional societies, and other not-for-profit institutions and organizations.

The GLOBE solicitation is being revised to clarify how Federal agencies can submit proposals, since they cannot submit them via Grants.gov or the NSF FastLane system. Federal agencies should contact one of the cognizant Program Officers before preparing a proposal for submission. (See Chapter I, Section E.7 of the Grant Proposal Guide.)

Special Instructions for Proposals with the participation of non-U.S. Institutions and Organizations

Participation of non-U.S. scientific institutions and organizations is an explicitly encouraged part of the GLOBE Program, and is a permitted activity under this solicitation.

Proposals must be submitted by U.S. institutions to receive U.S. Government funding. The inclusion (and funding) of activities to be executed by non-U.S. institutions, organizations, and individuals is strongly encouraged. If support for U.S. organization(s) is requested as part of an international proposal, a U.S. organization must submit the proposal. Proposals *submitted by non-U.S. institutions and organizations* will undergo merit review, but will not receive U.S. Government funding.

All proposals with participation from institutions or organizations outside the U.S. must be accompanied by letters of endorsement demonstrating a commitment to execute the elements of the investigation or activity to be conducted at non-U.S. institutions and organizations, should the proposal be selected.

Proposals with non-U.S. institution and organization participation must be submitted in the English language. GLOBE will include the protocols and educational materials that result from international proposals in its materials and support their dissemination throughout the GLOBE community.

A separate Agreement will be executed between the selected proposal's institutions or organizations, any additional international funding sources, and the GLOBE Office, outlining the funding conditions, monitoring, and oversight responsibilities.

- **PI Eligibility Limit:** Teams proposed in response to this solicitation may include scientists and educators from multiple countries and include partnerships between of U.S. and non-U.S. individuals, institutions, and organizations.
- **Limit on Number of Proposals:** An individual may be listed as a Principal Investigator on no more than one proposal and may be listed as a co-Investigator on no more than one other proposal.

Award Information

- **Anticipated Type of Award:** Continuing Grant
- **Estimated Number of Awards:** 3 to 5 - three to five awards
- **Anticipated Funding Amount:** \$4,000,000 Approximately \$1 million will be available in each of the next four fiscal years pending availability of funds.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Full proposals submitted via FastLane:**
 - Grant Proposal Guide (GPG) Guidelines apply
- **Full proposals submitted via Grants.gov:**
 - NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: <http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf>) To obtain copies of the Application Guide and Application Forms Package: click on the Apply tab on the Grants.gov website, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button.

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required by NSF.
- **Indirect Cost (F&A) Limitations:** Not Applicable.
- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Full Proposal Deadline Date(s)** (due by 5 p.m. submitter's local time):
March 08, 2006

Proposal Review Information

- **Merit Review Criteria:** National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

- **Award Conditions:** Additional award conditions apply. Please see the full text of this solicitation for further information.
- **Reporting Requirements:** Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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I. INTRODUCTION

What is GLOBE?

The GLOBE Program is a hands-on international education and science program that joins students, educators, and scientists from around the world in studying Earth Systems Science. The goals of the GLOBE Program are to improve science education, enhance environmental awareness, and increase understanding of the Earth as a System. GLOBE is an interagency program funded by NASA and NSF, supported by the U.S. Department of State, and implemented through a cooperative agreement between NASA, and the University Corporation for Atmospheric Research in Boulder, Colorado. It is also a cooperative effort of schools in partnership with colleges and universities, state and local school systems, and non-government organizations. Internationally, GLOBE is a partnership between the United States and other countries.

Since GLOBE's inception in 1994, GLOBE has grown to include tens of thousands of schools and teachers and over one million students. Every day, students collect data and submit their findings to the GLOBE web site, providing databases for scientific research. To date, these students have taken and reported data from more than nine million measurements. Data collected through GLOBE are publicly available at <http://www.globe.gov/>. GLOBE also supplies training to teachers and teacher-trainers in the implementation of this program, taking its measurements, and using GLOBE educational materials that

complement the measurements. A variety of information resources are provided on-line. These resources include visualizations of some data and GLOBEMail, a web-based mail system that allows program participants around the world to communicate with one another. The GLOBE web site <http://www.globe.gov/> provides a complete overview of the global initiatives and resource materials provided to the GLOBE community.

Next Generation GLOBE (NGG)

Recently, the GLOBE Program Office completed a new ten-year plan presented in: "The Next Generation" GLOBE (NGG; 2005), available here: https://globe1.globe.gov/webarchs/all/NGG_WhitePaper_9_291.pdf

While the core objectives of the GLOBE program will remain unchanged, the NGG plan describes several new approaches to program implementation that are intended to improve overall program effectiveness and strengthen connections between the existing GLOBE community and scientists engaged in cutting-edge Earth Systems Science research. Note: The NGG document refers to "Project-Based Management" partnerships, which in this solicitation are equivalent to Integrated Earth Systems Science Programs (IESSP).

II. PROGRAM DESCRIPTION

The solicitation is designed to link the rich resources of NSF or NASA-funded Earth Systems research programs to relevant student learning and authentic inquiry by funding teams of scientists and educators involved in Integrated Earth Systems Science Programs (IESSP) to work collaboratively with the GLOBE community. Eligible IESSP are those that receive major NSF or NASA programmatic and/or financial support and are comprised of multiple Principle Investigators working together on integrated Earth systems science research projects that share common goals. The suite of NSF- or NASA-funded programs includes NSF Geosciences programs, programs of the NSF Office of Polar Programs, as well as NASA Earth System Research and Applications Programs. The partnerships between the IESSP and the GLOBE program will continue to foster student observations of environmental parameters related to the Earth System Science and validation of satellite observations, however they will also work to increase sharing ideas, questions and results with scientists involved in selected IESSPs.

The IESSP teams will work closely with the GPO to meet the needs of the evolving GLOBE program. The IESSP teams must demonstrate:

- A focus on direct connections with major NSF Geosciences, NSF Polar Programs, and/or NASA Earth System research programs that are related to Earth systems science,
- A demonstrable benefit to GLOBE and to NSF Geosciences, NSF Polar Programs or NASA Earth System education goals (providing access to program researchers and data, working with GLOBE in setting up campaigns where possible, using tested GLOBE or non-GLOBE protocols to the greatest extent possible, actively participating in the wider GLOBE community including schools, among other goals),
- How the existing educational efforts of the large science program will coordinate with GLOBE,
- A rigorous evaluation and assessment component that will be collaborative with the GLOBE Program Offices' initiative and
- Contact and discussions with the GLOBE Program Office regarding understandings of roles and responsibilities.

An international component (participation by international science teams, collaborating with corresponding international programs, or interaction with international school districts) is not required but is strongly encouraged.

Desired outcomes from the IESSP/GLOBE partnerships include:

- Broadening the pool of scientists involved,
- Aligning activities and materials with research programs of national priority, and
- Continuing to receive guidance from top scientists.

Project Alignment

Projects need to demonstrate a strong commitment to linking cutting edge science research to best practices in science education. Best practices must include an alignment to the National Science Education Standards (NSES) in their content, instructional practices, and assessment strategies. As appropriate, the National Council of Teachers of Mathematics (NCTM) standards should be considered.

Composition of the IESSP teams

NSF, on GLOBE's behalf, is seeking proposals for project-based initiatives incorporating NSF/NASA-funded programs in Earth systems science. Principal Investigators, co-Principal Investigators and other senior personnel should have a demonstrated ability to work in a team environment and a strong commitment and ability to collaborate with a multi-disciplinary and inter-disciplinary design group. IESSP teams should address bridging the gap between standards and practice by providing expertise within their team staff. Each team must include some expertise to coordinate, evaluate, and assess activities.

Use of the GLOBE network

This solicitation requires close collaboration with the Globe Program Office. Through the GLOBE program, students, teachers, and scientists from all over the world, have been linked together in the pursuit of observing and understanding the Earth systems. GLOBE has supported teacher training, computer visualizations, graphics and an archived student data collection which are available on GLOBE's website. The next step will broaden the impact of GLOBE by creating IESSP teams focusing scientists studying the Earth systems through the major NSF- or NASA-funded projects to a growing global community of learners.

Evaluation of Program

Measurable outcomes of the IESSP:

- Linking major NSF/NASA –funded programs to the GLOBE community,
- Providing cutting edge science to students and teachers in the classroom,
- Involving students in authentic science observation and processing skills by collecting and analyzing data with various scientific tools and procedures,
- Establishing a smooth connection between the IESSP and the GLOBE infrastructure,
- Aligning core concepts and teaching strategies to the NSES,
- Demonstrating evidence of student and teacher concept knowledge as it relates to the core concepts in Earth systems science,
- Raising awareness of the importance of studying the Earth systems,
- Engaging teachers and students in conversations with scientists, and
- Understanding the technology used in studying the Earth systems.

Additional Information

Proposers may also find one or more of the following documents or web sites to be of interest:

1. NSF GEO <http://www.nsf.gov/dir/index.jsp?org=GEO>
2. NSF Office of Polar Programs <http://www.nsf.gov/dir/index.jsp?org=OPP>
3. NSF, *National Science Foundation In a Changing World: The National Science Foundation Strategic Plan*, Arlington, Virginia, National Science Foundation, 1995, NSF #95-24
4. GLOBE web site www.globe.gov), and GLOBE's "The Next Generation" GLOBE (NGG) white paper
5. NASA Earth Systems initiatives <http://science.hq.nasa.gov/earth-sun/science/index.html>
6. NASA's "Six Operating Principles" for education <http://education.nasa.gov/about/strategy>
7. NASA, *Earth Science Education Plan, Inspire the Next Generation of Earth Explorers*, http://earth.nasa.gov/visions/education_plan_2004.pdf
8. Keeley, Page, *Science Curriculum Topic study: Bridging the gap between standards and practice*, Corwin Press, 2005.
9. Wiggins, G. P. and McTighe, J., 2000, *Understanding by Design*: Prentice Hall
10. National Science Education Standards, National Research Council <http://books.nap.edu/html/nses/html/>
11. "Facilities to Empower Geoscience Discovery: 2004-2008" http://www.nsf.gov/geo/facilities/NSF_Geo2003.pdf

III. ELIGIBILITY INFORMATION

Proposals will be accepted from U.S. colleges, universities, agencies, professional societies, and other not-for-profit institutions and organizations.

The GLOBE solicitation is being revised to clarify how Federal agencies can submit proposals, since they cannot submit them via Grants.gov or the NSF FastLane system. Federal agencies should contact one of the cognizant Program Officers before preparing a proposal for submission. (See Chapter I, Section E.7 of the Grant Proposal Guide.)

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A separate Agreement will be executed between the selected proposal's institutions or organizations, any additional international funding sources, and the GLOBE Office, outlining the funding conditions, monitoring, and oversight responsibilities.

PI Eligibility Limit: Teams proposed in response to this solicitation may include scientists and educators from multiple countries and include partnerships between of U.S. and non-U.S. individuals, institutions, and organizations.

Limit on Number of Proposals: An individual may be listed as a Principal Investigator on no more than one proposal and may be listed as a co-Investigator on no more than one other proposal.

IV. AWARD INFORMATION

Under this solicitation, proposals may be submitted for periods of performance of up to forty-eight months. The program expects to make 3 to 5 continuing grant awards. Approximately \$1 million will be available in each year from FY 2006 through FY 2009. The anticipated funding decision date is six months from the deadline date. Funding of successful proposals is planned to commence in August of 2006, and budgets submitted should be for up to forty-eight months. Funding will be approved for these annual increments subject to satisfactory progress and the availability of funds.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Instructions:

Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane:

Proposals submitted in response to this program 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. 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.

- Full proposals submitted via Grants.gov:

Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (<http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf>). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

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

- A. Collaborative Proposals. All collaborative proposals must be submitted via the NSF FastLane system. This includes collaborative proposals submitted:

- by one organization (and which include one or more subawards); or
- as separate submissions from multiple organizations.

Proposers are advised that collaborative proposals submitted in response to this Program Solicitation via Grants.gov will be requested to be withdrawn and proposers will need to resubmit these proposals via FastLane. (Chapter II, Section D.3 of the Grant Proposal Guide provides additional information on collaborative proposals.)

- B. All Other Types of Proposals That Contain Subawards. All other types of proposals that contain one or more subawards also must be submitted via the NSF FastLane system.

The GLOBE solicitation is being revised to clarify how Federal agencies can submit proposals, since they cannot submit them via Grants.gov or the NSF FastLane system. Federal agencies should contact one of the cognizant Program Officers before preparing a proposal for submission. (See Chapter I, Section E.7 of the Grant Proposal Guide.)

B. Budgetary Information

Cost Sharing:

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

Other Budgetary Limitations:

The budget must include a request for funds to support travel for one project representative to attend the annual GLOBE meeting, which may involve travel to a location outside the United States.

Budget Preparation Instructions:

Budgets for any international component should be included as subcontracts to the submitting institution.

As described above, proposals that include subawards must be submitted via [Fastlane](#).

C. Due Dates

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

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

March 08, 2006

D. FastLane/Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

Detailed technical 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. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this 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/>

- **For Proposals Submitted Via Grants.gov:**

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. The Grants.gov's Grant Community User Guide is a comprehensive reference document that provides technical information about Grants.gov. Proposers can download the User Guide as a Microsoft Word document or as a PDF document. The Grants.gov User Guide is available at: <http://www.grants.gov/CustomerSupport>. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

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

VI. PROPOSAL REVIEW INFORMATION

A. NSF Proposal Review Process

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:

Through the review process, priority will be given to Proposers who can demonstrate (1) a commitment to and

expertise in design, implementation or evaluation of student- and teacher- based science activities that align with standards for content, instruction, and assessment, (2) the ability to deliver their results or products in a timely fashion with excellence, (3) a mutual, strong commitment from a scientist-educator team, (4) cost effectiveness, and (5) a willingness and ability to contribute to the overall GLOBE Program.

B. Review Protocol and Associated Customer Service Standard

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 Review followed by 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

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program 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

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.

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. 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.

Special Award Conditions:

The budget should include funds to support the travel costs for one project representative to attend the annual GLOBE meeting, which may involve travel outside the United States.

C. 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.

Awardees will be expected to coordinate closely with the GLOBE Program Office and with the GEO evaluation and assessment contractor. This coordination may include, but is not limited to, reports in addition to the annual technical reports required by NSF.

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

General inquiries regarding this program should be made to:

- Jill Leslie Karsten, Program Director for Diversity and Education, Directorate for Geosciences, 705 N, telephone: (703) 292-8500, fax: (703) 292-9042, email: jkarsten@nsf.gov
- Paul E. Filmer, Program Director, Directorate for Geosciences, Division of Earth Sciences, 785 S, telephone: (703) 292-7859, fax: (703) 292-9025, email: pfilmer@nsf.gov
- Dr. Ed Geary, Acting Director, GLOBE, P.O. Box 3000, Boulder, CO, 80307-3000, telephone: (303) 497-8700, email: egeary@globe.gov

For questions relating to Grants.gov contact:

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

For questions related to the use of FastLane, contact:

- Brian E. Dawson, Directorate for Geosciences, 705 N, telephone: (703) 292-4727, fax: (703) 292-9042, email: bdawson@nsf.gov

IX. OTHER PROGRAMS OF INTEREST

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.

The NSF *Guide to Programs* is a compilation of funding opportunities for research and education in science, technology, engineering, and mathematics. The NSF *Guide to Programs* is available electronically at www.nsf.gov/publications/pub_summ.jsp?ods_key=gp. General descriptions of NSF programs, and eligibility information for proposers are provided in the *Guide to Programs*.

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 web site at <http://www.nsf.gov/home/ebulletin>. Proposers can also subscribe to NSF's Custom News Service (www.nsf.gov/home/cns/start.htm), which provides notification of new funding opportunities as they become available.

The following programs within the Directorate for Geosciences (GEO) may be of interest.

Opportunities for Enhancing Diversity in the Geosciences (OEDG). Information about the program may be found at <http://www.nsf.gov/geo/diversity/index.jsp>.

Research Experiences for Undergraduates (REU). This long-standing NSF-wide program has been an effective vehicle for integrating research and education. REU Sites provide opportunities for small groups of undergraduate students to work on specially formulated research projects. GEO also supports involvement of undergraduates as members of research teams through the use of REU supplements to existing awards. REU proposals directed to GEO are reviewed in the GEO Divisions. Proposal submission should follow the REU guidelines, as outlined in the REU program solicitation (www.nsf.gov/pubsys/ods/getpub.cfm?nsf04584).

Education and Human Resources Program in the Division of Earth Sciences (E&HR). E&HR supports highly innovative educational activities in the earth sciences, including efforts to increase the diversity of participants, and involve leading researchers in education. Activities at all educational levels are supported. More information is available at: www.geo.nsf.gov/cgi-bin/geo/showprog.pl?id=123&div=ear.

Centers for Ocean Science Education Excellence (COSEE). COSEE fosters the integration of ocean research into high quality educational materials, allowing ocean researchers to gain a better understanding of educational organizations and pedagogy. COSEE also provides educators with an enhanced capacity to understand and deliver high-quality educational programs in the ocean sciences, and provides material to the public that promotes a deeper understanding of the ocean and its influence on each person's quality of life and our national prosperity. More information is available at www.nsf.gov/funding/pgm_summ.jsp?pims_id=5511.

Related programs exist within NSF's Directorate for Education and Human Resources (EHR), Division of Undergraduate Education (DUE). This Division supports curriculum and faculty development at the undergraduate level through the following programs. More information about these programs is available on the DUE website (www.nsf.gov/div/index.jsp?div=DUE):

Advanced Technological Education (ATE) (www.nsf.gov/funding/pgm_summ.jsp?pims_id=5464&org=DUE&from=home); and

Course, Curriculum, and Laboratory Improvement (CCLI) (www.nsf.gov/funding/pgm_summ.jsp?pims_id=5741&org=DUE&from=home)

The Division of Elementary, Secondary, and Informal Education (ESIE) in EHR also offers programs that are intended to promote student and teacher development at K-12 levels, and public science literacy through activities outside the classroom. These programs are described on the ESIE website (www.nsf.gov/div/index.jsp?div=ESIE).

The Division of Research, Evaluation, and Communication (REC) in EHR coordinates the Interagency Education Research Initiative (IERI). The goal of the IERI is to improve preK-12 student learning and achievement in reading, mathematics, and science by supporting rigorous, interdisciplinary research on large-scale implementations of promising educational practices and technologies in complex and varied learning environments. More information is available at the REC Web site (www.nsf.gov/div/index.jsp?div=REC).

Some related NSF-Wide Programs include:

- Integrative Graduate Education and Reserach Training Program (IGERT) (www.nsf.gov/crssprgm/igert/intro.jsp)
- Faculty Early-Career Development Program (CAREER) www.nsf.gov/funding/pgm_summ.jsp?pims_id=5262&from=fund

ABOUT THE NATIONAL SCIENCE FOUNDATION

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 (FASED) 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
 - or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to 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.

An agency may not conduct or sponsor, and a person is not required to respond to an information collection unless it displays a valid OMB control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne Plimpton, Reports Clearance Officer, Division of Administrative Services, National Science Foundation, Arlington, VA 22230.

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