

## **Geoscience Education (GeoEd)**

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### **Program Solicitation**

**NSF 04-598**

*Replaces Document NSF 03-515*



### **National Science Foundation**

Directorate for Geosciences

Division of Atmospheric Sciences

Division of Earth Sciences

Division of Ocean Sciences

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

November 15, 2004

### **REVISIONS AND UPDATES**

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Projects that integrate education research and geoscience education are now explicitly solicited.

Projects that focus on pre-service teacher training and professional development for in-service teachers are now specifically solicited.

Projects that are designed to create thematic collections for the Digital Library in Earth System Education are now specifically solicited.

Projects that focus on the transition from high school to college are now specifically solicited.

Program Officer information is updated.

Principal Investigators are now encouraged to form partnerships among institutions, organizations, and/or industries as appropriate to allow for long-term sustainability of projects.

### **SUMMARY OF PROGRAM REQUIREMENTS**

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#### **General Information**

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#### **Program Title:**

Geoscience Education (GeoEd)

#### **Synopsis of Program:**

The Geoscience Education Program considers proposals to initiate or pilot innovative geoscience education

activities. Projects that are informed by the results of current education-related research or that will conduct new educational research within a geoscience education venue are particularly appropriate for consideration under this solicitation. Awards are intended to provide start-up or proof-of-concept funding to enable projects to reach a level of maturity that will allow them to compete for longer-term funding from other sources or become self-sustaining. All proposed projects should have strong dissemination and evaluation plans.

Proposals may target any educational level: postdoctoral, graduate, undergraduate, secondary, middle, or elementary. Proposals to develop or improve the quality of geoscience-oriented pre-service teacher training and in-service professional development programs are also encouraged, as are proposals to increase or improve the geoscience content of informal education programs. Proposals to develop web-based educational materials that can be made available through the Digital Library for Earth System Education (DLESE) are also sought. Projects designed to recruit and retain students during the critical transition from high-school to college are appropriate for consideration by the GeoEd Program. In some cases, awards may be made to supplement active research grants.

### **Cognizant Program Officer(s):**

- Dr. Jacqueline Huntoon, Program Director for Diversity and Education, Directorate for Geosciences, telephone: (703) 292-8500, fax: (703) 292-9042, email: [jhuntoon@nsf.gov](mailto:jhuntoon@nsf.gov)

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

- 47.050 --- Geosciences

### **Eligibility Information**

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- **Organization Limit:** None Specified.
- **PI Eligibility Limit:** An individual may be Principal Investigator or co-Principal Investigator on no more than one proposal submitted per competition to the GeoEd Program.
- **Limit on Number of Proposals:** None Specified.

### **Award Information**

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- **Anticipated Type of Award:** Other - Standard or Continuing Grants or Supplements
- **Estimated Number of Awards:** 15
- **Anticipated Funding Amount:** \$1,500,000 pending availability of funds.

### **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.
- **Indirect Cost (F&A) Limitations:** Not Applicable.
- **Other Budgetary Limitations:** Not Applicable.

#### **C. Due Dates**

- **Full Proposal Deadline Date(s)** (due by 5 p.m. proposer's local time):  
November 15, 2004

## 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 goals of the Geoscience Education (GeoEd) Program are to:

- improve the quality of geoscience education at all educational levels;
- increase the number and competency of Earth and Space Science teachers at K-12 levels;
- increase the number of students enrolling in geoscience courses and degree programs at all educational levels; and
- increase the understanding of geoscience-related issues among the general public.

The comprehensive scope of the GeoEd Program is in accordance with recommendations made in the report of the Geoscience Education Working Group (GEWG), "Geoscience Education: A Recommended Strategy", (NSF 97-171). The report is available at <http://www.geo.nsf.gov/adgeo/education.htm>. The GEWG recognized that geoscience educators need to explicitly address the question, "What are we educating students for?" Further, the GEWG stressed the importance of hands-on experiences and constructivist learning at all educational levels. The report: "Bringing Research on Learning to the Geosciences" (available at: [http://dlesecommunity.carleton.edu/research\\_on\\_learning/workshop02/](http://dlesecommunity.carleton.edu/research_on_learning/workshop02/)) described multiple ways in which research on learning could be used to improve geoscience education.

Projects funded under this program should be grounded in scientific disciplines funded by the Directorate for Geosciences (GEO). These are identified on the GEO home page at <http://www.nsf.gov/home/geo/>. The term "geosciences" as used in this program solicitation refers collectively to those disciplines supported by GEO.

In many cases, it is helpful to include representatives of both the geoscience research and education research communities in teams (PI, coPIs, and Other Senior Personnel) assembled to conduct projects funded by the GeoEd Program. Implementation of innovative pedagogical strategies within the geoscience education arena can lead to both improved educational outcomes and new avenues for educational research.

## II. PROGRAM DESCRIPTION

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The Geoscience Education Program considers proposals to initiate or pilot highly innovative geoscience education activities. Projects that are informed by the results of current education-related research or that will conduct new educational research within a geoscience education venue are particularly appropriate for consideration under this solicitation.

Proposals to the GeoEd Program may target any educational level: postdoctoral, graduate, undergraduate, secondary, middle, or elementary. Proposals should not request funding for activities typically supported by basic research grants. Awards may be made to supplement active research grants when the specified supplemental activity will make a substantive contribution to geoscience education.

Proposals to develop or improve the quality of geoscience-oriented pre-service teacher training and in-service professional development programs are encouraged, as are proposals to develop or improve the geoscience content of informal education programs. Proposals to develop web-based educational materials that can be made available through the Digital Library for Earth System Education (DLESE), in the form of a thematic collection, are also sought.

Proposals to develop or strengthen introductory-level courses in Earth System Science, and build bridges between high-schools, two-year colleges, and four-year colleges or universities are particularly sought.

Many projects funded under this solicitation are high-risk new approaches. Other projects test the application of practices previously proven to be successful in other disciplines, or with different target audiences. Awards are intended to provide start-up or proof-of-concept funding that will enable projects to reach a level of maturity that will allow them to compete for longer-term funding from other sources, or become self-sustaining. Proposals should include a discussion of plans for, and potential sources of, follow-on funding if such will be required.

Projects are expected to complement, but not duplicate, efforts funded by NSF's Directorate for Education and Human Resources. Projects that promote active linkages and collaborations among geoscience researchers and education professionals are particularly encouraged. All proposed projects should have strong dissemination and evaluation plans. Where appropriate, use of DLESE for project dissemination is strongly encouraged.

Desirable attributes of projects funded by the GeoEd Program include:

- an Earth System Science approach;
- focus on fundamental concepts that unify the geosciences;
- emphasis on processes rather than facts;
- mathematical rigor, and the application of concepts from the other basic sciences; and
- the use of data and the scientific method in geoscience research.

An individual may be Principal Investigator or co-Principal Investigator on only one proposal submitted per competition to the GeoEd Program.

Letters providing evidence of commitment to the project by participating institutions, organizations, and/or industrial partners, must be included in the "Supplementary Docs" section of the proposal. These documents should describe how the proposed activities will support the mission and goals of all participating entities.

### 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.

An individual may be Principal Investigator or co-Principal Investigator on no more than one proposal submitted per competition to the GeoEd Program.

There is no limit on the number of proposals that may be submitted.

### IV. AWARD INFORMATION

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It is anticipated that \$1.5 million will be made available to support this competition during FY 2005. It is anticipated that approximately 15 awards will be made in FY 2005. The maximum amount that can be requested under this solicitation is \$200,000 per year for up to two years. The average award size is expected to be less than \$100,000 annually for up to two years.

### 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/cgi-bin/getpub?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).

Specific guidance below supplements the GPG's general guidance and modifies some requirements.

The Project Description section of the proposal should include the following:

- A description of prior efforts of the Principal and co-Principal Investigators in the field of geoscience education. Such efforts might include: 1) integration of contemporary geoscience research questions, techniques, results, and/or data into educational experiences; 2) contributing to the literature on geoscience teaching and learning; 3) developing or implementing plans to increase interest in the geosciences among pre-college students or the general public; 4) reforming geoscience courses or curriculum; and/or 5) applying the results of education research within geoscience education venues.
- A clear description of the activities to be undertaken, and the ways in which funds will be used to support those activities.
- A brief discussion of how the project is aligned with the long-term goals of all participating entities. Projects are expected to have potentially broad impacts that may lead to innovative intellectual developments and/or partnerships.
- A plan for obtaining follow-on funding for the project, or for making the project self-sustaining once the GeoEd funding period ends.
- A plan to evaluate the effectiveness of the project's activities. Evaluation plans should be appropriate to the scope of projects funded under this solicitation, which are typically exploratory and short-term in nature. The evaluation, by an evaluator with some independence from the project, should provide credible evidence about the extent to which students have achieved the learning goals established by the project. The evaluation not only informs the PI about how well the project works with students, but can form the basis for future proposals for longer term support. Awardees should plan to include the results of an evaluation with their final project report. The following references may be helpful in designing an evaluation plan.
  - The User-Friendly Handbook for Project Evaluation, Directorate for Education and Human Resources, National Science Foundation (<http://www.ehr.nsf.gov/rec/programs/evaluation/handbook/>).
  - User Friendly Handbook for Mixed Method Evaluation (NSF 97-153) (<http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf97153>).
  - Online Evaluation Resource Library (<http://oerl.sri.com>).
  - Field-tested Learning Assessment Guide (FLAG) (<http://www.wcer.wisc.edu/nise/CL1/flag>).
  - Evaluation Handbook, W.K. Kellogg Foundation (<http://www.wkkf.org/Publications/evalhdbk/default.htm>).
  - Wiggins, G. P. and McTighe, J., 2000, *Understanding by Design*: Prentice Hall, 201 pp.
- A plan to disseminate information about the project, including aspects that are found to be effective and ineffective. For many projects, dissemination can be accomplished by contributing materials to the Digital Library for Earth System Education (DLESE). Proposers should consult <http://www.dlese.org/> to familiarize themselves with DLESE. DLESE personnel are available to facilitate the submission process, including the construction of metadata records describing submitted content.

The Supplementary Documents section of the proposal should contain the following:

- Letters that describe how the proposed activities will support the long-term goals of all participating entities must be included in the "Supplementary Docs" section of the proposal.

Proposers are reminded to identify the program announcement/solicitation number (04-598) 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 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 Deadline(s)** (due by 5 p.m. proposer's local time):

November 15, 2004

### 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:**

Is the project designed so that the funds provided through a GeoEd award will be catalytic and enable the project to reach a level of maturity that will allow it to compete successfully for longer-term funding from other sources or become self-sustaining?

Is there evidence that the project is aligned with the mission and goals of participating entities?

**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 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 also are administered in accordance with NSF Cooperative Agreement Terms and Conditions (CA-1). 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.

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

More comprehensive information on NSF Award Conditions is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Website at <http://www.nsf.gov/cgi-bin/getpub?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>.

### Special Award Conditions:

Important award conditions apply to awards that involve pilot testing and evaluating materials. Proposers should see Section 711 of the [GPM](#). Additional award conditions may apply to projects involving commercial distribution or commercial publication of developed materials (see Sections 730-753 of the [GPM](#)).

### 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.

Awardees should plan to include the results of an evaluation with their final project report.

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:

- Dr. Jacqueline Huntoon, Program Director for Diversity and Education, Directorate for Geosciences, telephone: (703) 292-8500, fax: (703) 292-9042, email: [jhuntoon@nsf.gov](mailto:jhuntoon@nsf.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](mailto:bdawson@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 [Custom News Service](#) (<http://www.nsf.gov/home/cns/start.htm>) 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 <http://www.nsf.gov/cgi-bin/getpub?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* (<http://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.geo.nsf.gov/geo/diversity>.
- 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 announcement (<http://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: <http://www.geo.nsf.gov/cgi-bin/geo/showprog.pl?id=123&div=ear>.

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 (<http://www.ehr.nsf.gov/ehr/due/programs/>):

- [Advanced Technological Education \(ATE\)](#); and
- [Course, Curriculum, and Laboratory Improvement \(CCLI\)](#).

The Division of Elementary, Secondary, and Informal Education (ESIE) in EHR also offers the following 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 (<http://www.ehr.nsf.gov/ehr/esie/>):

- [Advanced Technological Education \(ATE\)](#);
- [Informal Science Education \(ISE\)](#);
- [Instructional Materials Development \(IMD\)](#);
- [Teacher Professional Continuum \(TPC\)](#); and
- [Communicating Research to Public Audiences](#).

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 (<http://www.ehr.nsf.gov/EHR/rec/>).

Some related NSF-Wide Programs include:

- [Integrative Graduate Education and Research Training Program \(IGERT\)](#); and
- [Faculty Early-Career Development Program \(CAREER\)](#).

## 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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