

# Geoinformatics (GI)

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## PROGRAM SOLICITATION NSF 11-581



National Science Foundation

Directorate for Geosciences  
Division of Earth Sciences

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

January 13, 2012

July 01, 2013

July 1, Every Other Year Thereafter

### IMPORTANT INFORMATION AND REVISION NOTES

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A revised version of the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), [NSF 11-1](#), was issued on October 1, 2010 and is effective for proposals submitted, or due, on or after January 18, 2011. Please be advised that the guidelines contained in [NSF 11-1](#) apply to proposals submitted in response to this funding opportunity.

**Cost Sharing:** The PAPPG has been revised to implement the National Science Board's recommendations regarding cost sharing. Inclusion of voluntary committed cost sharing is prohibited. In order to assess the scope of the project, all organizational resources necessary for the project must be described in the Facilities, Equipment and Other Resources section of the proposal. The description should be narrative in nature and must not include any quantifiable financial information. Mandatory cost sharing will only be required when explicitly authorized by the NSF Director. See the PAPP Guide Part I: *Grant Proposal Guide (GPG) Chapter II.C.2.g(xi)* for further information about the implementation of these recommendations.

**Data Management Plan:** The PAPPG contains a clarification of NSF's long standing data policy. All proposals must describe plans for data management and sharing of the products of research, or assert the absence of the need for such plans. FastLane will not permit submission of a proposal that is missing a Data Management Plan. The Data Management Plan will be reviewed as part of the intellectual merit or broader impacts of the proposal, or both, as appropriate. Links to data management requirements and plans relevant to specific Directorates, Offices, Divisions, Programs, or other NSF units are available on the NSF website at: <http://www.nsf.gov/bfa/dias/policy/dmp.jsp>. See [Chapter II.C.2.j](#) of the GPG for further information about the implementation of this requirement.

**Postdoctoral Researcher Mentoring Plan:** As a reminder, each proposal that requests funding to support postdoctoral researchers must include, as a supplementary document, a description of the mentoring activities that will be provided for such individuals. Please be advised that if required, FastLane will not permit submission of a proposal that is missing a Postdoctoral Researcher Mentoring Plan. See [Chapter II.C.2.j](#) of the GPG for further information about the implementation of this requirement.

Prior to submitting a proposal it is strongly recommended that the proponent(s) seek advice from the relevant Program Officer(s) listed in the solicitation and from the Program Officer(s) overseeing the program(s) whose communities are affected by the project. This will help to identify potential synergies with ongoing efforts as well as to insure coordination of an appropriate merit review.

This is not a new activity. Geoinformatics was previously included as a separate sub-area of support in the Division of Earth Sciences Instrumentation and Facilities Program (EAR/IF) solicitation [NSF 09-517](#). This separate solicitation gives this activity more emphasis and exposure to the relevant communities.

### SUMMARY OF PROGRAM REQUIREMENTS

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#### General Information

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**Program Title:**

Geoinformatics (GI)

**Synopsis of Program:**

The Division of Earth Sciences (EAR) will consider proposals for the development of cyberinfrastructure for the geosciences (Geoinformatics). EAR seeks the development and implementation of enabling information technology with impacts that extend beyond an individual investigator or small group of investigators and that facilitates the next generation of geosciences research. Proposals to this solicitation may seek support for community-driven development and implementation of databases; tools for data integration, interoperability, and visualization; software development and code hardening; and data-intensive/new computing methodologies that support the enhancement of geosciences research and education activities. Collaboration with computational scientists and the development of public/private partnerships are strongly encouraged.

The efforts supported by this solicitation do not overlap with, but are complementary to, EarthCube, a partnership between the Geosciences Directorate (GEO) and the Office of Cyberinfrastructure (OCI) to build an integrated geosciences-wide cyberinfrastructure (<http://www.nsf.gov/pubs/2011/nsf11065/nsf11065.jsp>). The goal of EarthCube is to transform the conduct of research in the geosciences by supporting community-created cyberinfrastructure that integrates knowledge management across the geosciences. The Geoinformatics solicitation will support efforts to create the underlying knowledge base and utilities that will be integrated, over time, through EarthCube. Projects submitted to the Geoinformatics solicitation should be proposed using modern software techniques and standards that facilitate eventual integration into a geoscience-wide knowledge system.

**Cognizant Program Officer(s):**

*Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.*

- Leonard Johnson, Division of Earth Sciences, telephone: (703) 292-8559, email: [lejohnso@nsf.gov](mailto:lejohnso@nsf.gov)
- Eva Zanzierka, Division of Earth Sciences, telephone: (703) 292-8556, email: [ezanzerk@nsf.gov](mailto:ezanzerk@nsf.gov)
- David Lambert, Division of Earth Sciences, telephone: (703) 292-8558, email: [dlambert@nsf.gov](mailto:dlambert@nsf.gov)

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

- 47.050 --- Geosciences

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## Award Information

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

**Estimated Number of Awards:** 5 to 10 The number of awards will depend on the quality of proposals, the amount of funding available, and the need for the proposed tools, software, and/or databases for the geoscience community(ies) to be served.

**Anticipated Funding Amount:** \$4,800,000 Variable with the amount depending on the quality of proposals, the amount of funding available, and the need for the proposed tools, software, and/or databases for the geoscience community(ies) to be served. It is anticipated that proposals over a wide spectrum of amounts will be entertained, from low-cost, single-investigator proposals to large, multi-investigator/institutional proposals. Presently, the Division of Earth Sciences spends approximately \$5M annually on geoinformatics activities.

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## Eligibility Information

**Organization Limit:**

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

**PI Limit:**

None Specified

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

None Specified

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

None Specified

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## Proposal Preparation and Submission Instructions

**A. Proposal Preparation Instructions**

- **Letters of Intent:** Not Applicable
- **Preliminary Proposal Submission:** Not Applicable
- **Full Proposals:**
  - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpg](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg).
  - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide))

**B. Budgetary Information**

- **Cost Sharing Requirements:** Inclusion of voluntary committed cost sharing is prohibited.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Not Applicable

## C. Due Dates

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

January 13, 2012

July 01, 2013

July 1, Every Other Year Thereafter

## Proposal Review Information Criteria

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

## Award Administration Information

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**Award Conditions:** Standard NSF award conditions apply.

**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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Geoinformatics has emerged through the scientific community's recognition of the growing need for an information science infrastructure and practice to facilitate our understanding of the Earth as a complex system. Technological advances have greatly facilitated the collection of data (from the field or laboratory) and the simulation of Earth systems. This has resulted in the exponential growth of geosciences data and the dramatic increase in our ability to accommodate complexity in models of Earth systems. Geoscientists have also acknowledged the need to capture and utilize increasing amounts of data, both new and legacy, so that future research can more easily build upon past accomplishments and avoid past mistakes. Other emerging challenges in geoinformatics are related to the archiving and the long-term preservation of data and derived data products obtained from geoscience computational and data management activities (e.g., metadata, model results, etc).

To advance the frontiers of Earth system science, geoscientists and others need to discover, manage, and analyze this full range of data. Easy online access to data and data products, appropriate visualization tools, and user-friendly modeling and analysis codes help scientists, educators, and resource managers use geosciences data and other information technology tools to their full potential, especially in a highly integrated fashion. Recent advances such as data-intensive computing, data discovery, computational methods, cloud and supercomputing, visualization, and database interoperability provide a practical means to address these needs and fall under the purview of Geoinformatics.

Thus, the focus of this solicitation is on the data, software tools, and computational infrastructure needed to facilitate studies of the structure, dynamics, and evolution of the Earth through time, as well as the processes that act upon and within the Earth from the surface to the core. Successful projects will respond to geosciences community cyberinfrastructure needs to advance geosciences

questions. Innovative approaches to creating, sustaining, and analyzing extensive and diverse data sets as well as the development of software and computational approaches that cross spatial and temporal boundaries are strongly encouraged.

The efforts supported by this solicitation do not overlap with, but are complementary to, EarthCube, a partnership between the Geosciences Directorate (GEO) and the Office of Cyberinfrastructure (OCI) to build an integrated geosciences-wide cyberinfrastructure (<http://www.nsf.gov/pubs/2011/nsf11065/nsf11065.jsp>). The goal of EarthCube is to transform the conduct of research in the geosciences by supporting community-created cyberinfrastructure that integrates knowledge management across the geosciences. The Geoinformatics solicitation will support efforts to create the underlying knowledge base and utilities that will be integrated, over time, through EarthCube. Projects submitted to the Geoinformatics solicitation should be proposed using modern software techniques and standards that facilitate eventual integration into a geoscience-wide knowledge system.

## II. PROGRAM DESCRIPTION

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Geoinformatics will focus on cyberinfrastructure building activities that will enable transformative advances in geosciences research and education supported within the Division of Earth Sciences. Projects must be rooted firmly in the geoscience community and be responsive to specific community needs. This solicitation does not support hardware development or major hardware purchases. Geoinformatics proposals will normally:

- Identify the targeted user community(ies); describe how the proposed activity has grown out of, and engaged this/these user community(ies); and discuss how it addresses its/their unmet needs.
- Demonstrate an awareness and understanding of existing informatics infrastructure and developments both within the geosciences community and in the computational sciences, as well as other fields that impact the proposed work.
- Provide plans for the integration and compatibility of the proposed geoinformatics platform(s) within existing geoinformatics activities and networks, where appropriate.
- Develop metrics that can be used to monitor and evaluate quantitatively how the resulting product is likely to be used and its potential impact on the targeted community and science.
- Include a management plan that estimates potential out-year sustainability costs (operations, maintenance, and other support costs) and presents a robust sustainability plan.
- Adopt open source and platform-independent development principles whenever possible ( [see for open source license procedures](#)).
- Address scalability in terms of expanding user capacity.
- Involve computational scientists and/or industry partners, as appropriate, as co-investigators, collaborators, and/or consultants.

To better understand present NSF investments in geoinformatics, it is recommended that proponents contact the Program Officer(s) listed in this solicitation. It is also strongly recommended that proponents discuss their idea(s) with Program Officers in the Division of Earth Sciences program(s) most closely affiliated with the proposed activity so synergies with already funded projects can be identified and so the merit review process can be coordinated.

## III. AWARD INFORMATION

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

**Estimated Number of Awards:** 5 to 10 The number of awards will depend on the quality of proposals, the amount of funding available, and the need for the proposed tools, software, and/or databases for the geoscience community(ies) to be served.

**Anticipated Funding Amount:** \$4,800,000 Variable with the amount depending on the quality of proposals, the amount of funding available, and the need for the proposed tools, software, and/or databases for the geoscience community(ies) to be served. It is anticipated that proposals over a wide spectrum of amounts will be entertained, from low-cost, single-investigator proposals to large, multi-investigator/institutional proposals. Presently, the Division of Earth Sciences spends approximately \$5M annually on geoinformatics activities.

Estimated program budget, number of awards, and average award size/duration are subject to the availability of funds. It is anticipated that proposals over a wide spectrum of amounts will be entertained from low-cost, single-investigator proposals to large, multi-investigator/institutional proposals.

## IV. ELIGIBILITY INFORMATION

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### Organization Limit:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

### PI Limit:

None Specified

### Limit on Number of Proposals per Organization:

None Specified

### Limit on Number of Proposals per PI:

## V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

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### A. Proposal Preparation Instructions

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**Full Proposal Preparation Instructions:** Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpg](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg). Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov). Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.
- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: ([http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)). 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 [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov).

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

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.4 of the Grant Proposal Guide provides additional information on collaborative proposals.

### B. Budgetary Information

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**Cost Sharing:** Inclusion of voluntary committed cost sharing is prohibited

### C. Due Dates

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

January 13, 2012

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July 1, Every Other Year Thereafter

### D. FastLane/Grants.gov Requirements

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- **For Proposals Submitted Via FastLane:**

Detailed technical instructions regarding the technical aspects of preparation and submission via FastLane are available at: <https://www.fastlane.nsf.gov/a1/newstan.htm>. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail [fastlane@nsf.gov](mailto:fastlane@nsf.gov). The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

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

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

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: [http://www07.grants.gov/applicants/app\\_help\\_reso.jsp](http://www07.grants.gov/applicants/app_help_reso.jsp). In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: [support@grants.gov](mailto:support@grants.gov). The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

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

## VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

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Proposals received by NSF are assigned to the appropriate NSF program where they will be reviewed if they meet NSF proposal preparation requirements. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal.

### A. NSF Merit Review Criteria

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

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

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

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

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

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

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

Mentoring activities provided to postdoctoral researchers supported on the project, as described in a one-page supplementary document, will be evaluated under the Broader Impacts criterion.

#### Additional Solicitation Specific Review Criteria

- Science Justification: Does the proposed infrastructure respond to a well defined cyberinfrastructure need in the geosciences community? Does the proposal adequately demonstrate the advances in research and education that will result through the new infrastructure?
- Design: Is the design and structure of the proposed CI appropriate to achieve its stated goals? Will it be capable of achieving results at a level of scale, interoperability, and sustainability that transcend current capabilities? Will it effectively leverage previous and ongoing investments in the area?
- Project Management: Is the leadership, management, and organization appropriate for the scale of the activity? Does the proposal adequately describe the policies, criteria, and procedures for selection of the proposed technologies, software development practices, and strategies for managing the full software development cycle?
- Assessment: Does the project adequately identify metrics for success and a credible plan for measuring progress and impacts on the targeted geosciences community(ies)? Is the target audience well identified and engaged in the entire life cycle of the project?

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

**Integration of Research and Education**

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

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

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

## B. Review and Selection Process

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Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review, or Internal NSF Review.

Standard NSF review criteria, along with the additional criteria listed in the solicitation, will be used to evaluate the proposals. The merit review will be carried out in accordance with NSF policy by ad-hoc mail review and/or a combination of ad-hoc mail and panel review. Panels, if deemed appropriate, will be held to assess the proposals submitted in a holistic manner. Proposals will be ranked based on competitiveness.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

## 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 administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

### B. Award Conditions

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An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); \* or Research Terms and Conditions \* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

\*These documents may be accessed electronically on NSF's Website at [http://www.nsf.gov/awards/managing/award\\_conditions.jsp?org=NSF](http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF). Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov).

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=aag](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag).

### C. Reporting Requirements

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For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through FastLane, for preparation and submission of annual and final project reports. Such reports provide information on activities and findings, project participants (individual and organizational), publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system. Submission of the report via FastLane constitutes

certification by the PI that the contents of the report are accurate and complete. The project outcomes report must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

Annual and final reports will be required to contain information on the metrics discussed in the proposal that are designed to assess project success in reaching and serving the targeted geoscience community(ies).

## VIII. AGENCY CONTACTS

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*Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.*

General inquiries regarding this program should be made to:

- Leonard Johnson, Division of Earth Sciences, telephone: (703) 292-8559, email: [lejohnso@nsf.gov](mailto:lejohnso@nsf.gov)
- Eva Zanzerkia, Division of Earth Sciences, telephone: 703-292-8556, email: [ezanzerk@nsf.gov](mailto:ezanzerk@nsf.gov)
- David Lambert, Division of Earth Sciences, telephone: (703)292-8558, email: [dlambert@nsf.gov](mailto:dlambert@nsf.gov)

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: [fastlane@nsf.gov](mailto:fastlane@nsf.gov).

For questions relating to Grants.gov contact:

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

## IX. OTHER INFORMATION

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The NSF Website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this Website by potential proposers is strongly encouraged. In addition, National Science Foundation Update is a free e-mail subscription service designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Regional Grants Conferences. Subscribers are informed through e-mail when new publications are issued that match their identified interests. Users can subscribe to this service by clicking the "Get NSF Updates by Email" link on the [NSF web site](#).

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

## ABOUT THE NATIONAL SCIENCE FOUNDATION

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NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

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