EarthScope - SAFOD Management Office (SMO)

PROGRAM SOLICITATION
NSF 12-574

National Science Foundation

Directorate for Geosciences
Division of Earth Sciences

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

September 24, 2012

IMPORTANT INFORMATION AND REVISION NOTES

Important Reminders

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.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

EarthScope
SAFOD Management Office (SMO)

Synopsis of Program:

EarthScope is an Earth science program to explore the four-dimensional structure of the North American continent. The EarthScope Program provides a framework for broad, integrated studies across the Earth sciences, including research on fault properties and the earthquake process, strain transfer, magmatic and hydrous fluids in the crust and mantle, plate boundary processes, large-scale continental deformation, continental structure and evolution, and composition and structure of the deep Earth. In addition, EarthScope offers a centralized forum for Earth science education at all levels and an excellent opportunity to develop cyberinfrastructure to integrate, distribute, and analyze diverse data sets.

The EarthScope Facility, consisting of the Plate Boundary Observatory (PBO), the San Andreas Fault Observatory at Depth (SAFOD), and USArray, is a multi-purpose array of instruments and observatories that greatly expands the observational capabilities of the Earth sciences and permits us to advance our understanding of the structure, evolution, and dynamics of the North American continent.

This Solicitation invites single or collaborative proposals for a new SAFOD Management Office (SMO). The SMO will ensure that SAFOD is operated, managed, and maintained in a manner that facilitates ongoing use of SAFOD for independent PI-driven Earth science research.

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.

- Gregory J. Anderson, 785 N, telephone: (703) 292-4693, email: greander@nsf.gov

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

- 47.050 --- Geosciences

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant or Cooperative Agreement

Estimated Number of Awards: 1

Anticipated Funding Amount: $1,800,000

Up to $300,000 per year for FY2013 and in subsequent years, for up to six years, pending annual performance and availability of funds.

Eligibility Information

Organization Limit:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.
- For-profit organizations: U.S. commercial organizations, especially small businesses with strong capabilities in scientific or engineering research or education.

PI Limit:

None Specified

Limit on Number of Proposals per Organization: 1

Limit on Number of Proposals per PI: 1

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.
  - 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)

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):

  September 24, 2012

Proposal Review Information Criteria

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.

TABLE OF CONTENTS

I. INTRODUCTION

The EarthScope Program is part of the Division of Earth Sciences (EAR). EAR provides funding for the conduct of research in most areas of the solid Earth and surface-terrestrial sciences. EAR focuses on improving our understanding of the Earth's structure, composition, evolution, and the interaction with the Earth's biosphere, atmosphere, and hydrosphere. In addition, EAR provides support for instrumental and observational infrastructure, cyberinfrastructure, and innovative educational and outreach activities. Projects may employ any combination of field, laboratory, and computational studies with observational, theoretical, or experimental approaches. Support is available for research and research infrastructure through grants and cooperative agreements awarded in response to investigator-initiated proposals. EAR will consider co-funding of projects with other agencies and supports international work and collaborations.

EarthScope is an Earth science program to explore the four-dimensional structure of the North American continent. The EarthScope Program provides a framework for broad, integrated studies across the Earth sciences, including research on fault properties and the earthquake process, strain transfer, magmatic and hydrous fluids in the crust and mantle, plate boundary processes, large-scale continental deformation, continental structure and evolution, and composition and structure of the deep Earth. In addition, EarthScope offers multiple opportunities for Earth science education at all levels and an excellent opportunity to develop cyberinfrastructure to integrate, distribute, and analyze diverse data sets.

The EarthScope Facility, comprising the Plate Boundary Observatory (PBO), the San Andreas Fault Observatory at Depth (SAFOD), and USArray, is a multi-purpose array of instruments and observatories that greatly expands the observational capabilities of the Earth sciences and permits us to advance our understanding of the structure, evolution, and dynamics of the North American continent.

II. PROGRAM DESCRIPTION

The main purpose of the SAFOD component of the EarthScope Facility is to enable multidisciplinary research into the physical and chemical processes that govern the behavior at depth of a large plate-bounding fault. SAFOD was designed to meet this goal through an integrated program of downhole sampling, measurements, and long-term monitoring grouped along five broad themes: (1) determine fault-zone structure, composition, and physical properties at depth; (2) determine frictional, mechanical, and chemical properties controlling fault behavior through laboratory studies of physical samples; (3) measure in situ mechanical conditions such as stress, strain changes, pore pressure, and near-field seismic radiation throughout the cycle of repeating microearthquakes; (4) characterize the three-dimensional volume of crust containing the fault; and (5) observe earthquake nucleation and rupture processes in the near field.

SAFOD is located on five acres of leased land in central California, northwest of the town of Parkfield and about 2 km southwest of the San Andreas Fault. The site includes both the 1.0-km-deep vertical Pilot Hole and the 2.7-km-deep inclined Main Hole. The site

contains several other temporary structures for equipment storage and data recording; A-frames and wireline logging winch units; and other support equipment. There is a recording hut that houses all computers, surface electronics, data logging, telemetry, and other equipment necessary to support downhole instrumentation and Internet access. Finally, a PBO GPS station is located on site.

The SAFOD component of the EarthScope Facility comprises:

- A 3.3-km-long borehole (SAFOD Main Hole) drilled alongside and inclined through the San Andreas Fault at 2.7 km depth;
- A fiber optic vertical laser strainmeter, installed outside the inner borehole casing from the surface to a depth of 864 meters;
- Physical samples including core, washed and unwashed cuttings, drilling mud, and borehole fluids;
- A thin section library, CT scans, and other data characterizing SAFOD physical samples;
- Geophysical logging data collected during the construction of the SAFOD borehole; and
- Digital data collected during experiments deployed in the SAFOD Main Hole.

NSF oversees SAFOD in partnership with the US Geological Survey (USGS). USGS holds the site lease, valid through 30 September 2019, and is responsible for arranging site access with the landowner. USGS also manages the SAFOD Pilot Hole, the recording hut and its contents, site power, radio towers, other telemetry equipment, and Internet access. With support through an award from NSF, UNAVCO oversees for NSF the SAFOD Main Hole, SAFOD vertical laser strainmeter, the physical samples that have been collected on site and information derived from them, and digital data collected during SAFOD Main Hole construction and operations. UNAVCO also manages the PBO GPS station at SAFOD.

Additional details may be found from the SAFOD page on the EarthScope Web site, at http://www.earthscope.org/observatories/safod.

Duties of the SAFOD Management Office

The SMO will ensure that SAFOD is operated, managed, and maintained in a manner that facilitates ongoing use of SAFOD for independent PI-driven Earth science research. At a minimum, the SMO will:

- Liaise with NSF, USGS, and funded PIs to schedule and coordinate access to the SAFOD Main Hole, installation and removal of equipment, and related activities;
- Establish an Advisory Committee and working groups necessary to assess SMO activities and provide direct community advice to SMO on technical and scientific matters arising during SAFOD activities;
- Oversee curation and distribution of SAFOD physical samples through the Gulf Coast Repository at Texas A&M University;
- Oversee operation and maintenance of the SAFOD vertical laser strainmeter through the University of California, San Diego;
- Ensure that existing and future SAFOD data are properly managed and easily accessible through the EarthScope archives and other appropriate systems;
- Maintain the SAFOD Core Viewer tool and develop other Web resources as necessary to support SAFOD activities, in coordination with the EarthScope National Office and other appropriate groups;
- Provide to NSF quarterly, annual, and other required interim reports on SMO activities and SAFOD use; and
- Work with UNAVCO, which currently manages SAFOD for NSF, to ensure a smooth transition to the new awardee.

The SMO will establish an Advisory Committee, and working groups as necessary, to assess SMO activities and provide direct community advice to SMO. The charter for the Advisory Committee and its membership will be subject to approval by the cognizant NSF Program Officer. The SMO budget will include funding for operation of the Advisory Committee, including at least one in-person meeting per year.

The SMO will also coordinate with NSF, the EarthScope National Office, and the management entities responsible for PBO and USArray in order to (1) ensure that EarthScope discoveries and their implications reach a broad spectrum of local, regional, and national audiences and (2) foster, facilitate, coordinate, and support integrated science, education, outreach, and related activities for the EarthScope Program.

Additional relevant links

- SAFOD page on the EarthScope Web site
- SAFOD page on the International Continental Scientific Drilling Program Web site
- Article on "Scientific Drilling Into the San Andreas Fault Zone -- An Overview of SAFOD's First Five Years"

III. AWARD INFORMATION

Under this Solicitation, proposals may be submitted for up to six years. The program expects to make one (1) standard or continuing grant or cooperative agreement with a duration of up to six years, depending on the quality of submissions and the availability of funds. Approximately $300,000 is expected to be available in FY2013 to support proposals received under this Solicitation, subject to availability of funds.

IV. ELIGIBILITY INFORMATION

Organization Limit:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.
- For-profit organizations: U.S. commercial organizations, especially small businesses with strong capabilities in scientific or engineering research or education.

PI Limit:

None Specified

Limit on Number of Proposals per Organization: 1

Limit on Number of Proposals per PI: 1

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

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. 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. 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). 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.

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.

The following information provides instructions that supplement the Grant Proposal Guide and the NSF Grants.gov Application Guide.

Prospective principal investigators are required to contact Greg Anderson (greander@nsf.gov or 703-292-4693), cognizant NSF Program Officer for the EarthScope Facility, prior to proposal submission, and are very strongly encouraged to do so as early as possible during the proposal development process.

Prospective principal investigators are very strongly encouraged to contact David Mencin at UNAVCO (mencin@unavco.org or 303-381-7558) as early as possible during the proposal development process. UNAVCO currently manages the SAFOD component of the EarthScope Facility for NSF.

Prospective principal investigators are very strongly encouraged to contact William Ellsworth and/or Stephen Hickman at the US Geological Survey (ellsworth@usgs.gov and/or hickman@usgs.gov) as early as possible during the proposal development process.

Prospective principal investigators are very strongly encouraged to read the detailed review article on SAFOD available via the EarthScope Web site at http://www.earthscope.org/observatories/safod.

Each proposal should address the proposing organization's scientific, technical, and managerial qualifications to operate SAFOD, and must include a detailed description of each of the following:

- Management and organizational structure for SMO, including appropriate governance and advisory structures. Describe roles, lines of authority, communications, and accountability for each position in the proposed SMO structure.
- Plans for implementing and monitoring compliance with relevant risk management practices, environmental regulations, and health and safety requirements.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

C. Due Dates

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

  September 24, 2012

D. FastLane/Grants.gov Requirements

- **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. 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. 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. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

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

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 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, 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

In addition to the two NSB-approved merit criteria, the following criteria will be considered:

- Does the proposer have sufficient understanding of deep borehole science, engineering, and operations to successfully provide access to SAFOD for the Earth science community, and to support projects funded to use SAFOD?
- Is the project supported by adequate resources and institutional commitment?
- Is the proposed budget appropriate, clear, and well justified?
- Is there a coherent and effective management and organizational structure?
- What is the quality of the risk management plan for 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

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

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

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

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 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

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. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from 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.

Special Award Conditions:

EAR and EarthScope Data Policies: The SMO will ensure that all digital data collected using the SAFOD facility are managed in accordance with the EAR Data Policy (http://www.nsf.gov/geo/ear/EAR_data_policy_204.pdf) and the EarthScope Data Policy (http://www.earthscope.org/es_doc/data/esdatapolicy.pdf).

Standard cooperative agreement terms and conditions, including supplements for managers of FFRDCs and Large Facilities, are available at http://www.nsf.gov/awards/managing/co-op_conditions.jsp?org=NSF.

Award Specific Financial/Administrative and Programmatic Terms and Conditions will be negotiated with the SMO prior to award by the cognizant NSF program officer and cognizant NSF grants and agreements officer.

C. Reporting Requirements

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.

Additional reporting requirements will be negotiated at time of award. Please see the full text of this solicitation for further information.

VIII. AGENCY CONTACTS

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:

- Gregory J. Anderson, 785 N, telephone: (703) 292-4693, email: greander@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: 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.

IX. OTHER INFORMATION

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

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

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.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions

regarding preparation of these types of proposals.

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