

# U.S. Science Support Program associated with the International Ocean Discovery Program (USSSP-IODP)

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## PROGRAM SOLICITATION

NSF 14-549

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### REPLACES DOCUMENT(S):

NSF 06-575

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National Science Foundation

Directorate for Geosciences  
Division of Ocean Sciences

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

June 30, 2014

## IMPORTANT INFORMATION AND REVISION NOTES

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The five task or activities described in the program description section of this solicitation are similar in scope to that of Solicitation NSF 06-575, with one exception. This solicitation does not have a task or activity associated with instrumentation development.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPP) ([NSF 18-1](#)), which is effective for proposals submitted, or due, on or after January 29, 2018.

## SUMMARY OF PROGRAM REQUIREMENTS

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### General Information

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**Program Title:**

U.S. Science Support Program associated with the International Ocean Discovery Program (USSSP-IODP)

**Synopsis of Program:**

The International Ocean Discovery Program (IODP) will serve to advance basic research in the marine geosciences and will be supported by the National Science Foundation (NSF) and more than 20 international partners. The IODP builds on a rich legacy of scientific ocean drilling pioneered by the NSF in the 1960's with the Deep Sea Drilling Project, which provided a test of the plate tectonic hypothesis and a basic reconnaissance of deep-sea sediments and crustal rocks. The Ocean Drilling Program followed in 1985 and focused on examination of earth, ocean and climate processes. The Integrated Ocean Drilling Program, which began in 2003, served as an expanded program of scientific ocean drilling that used multiple drilling platforms and new technologies. The IODP commenced October 1, 2013 and builds upon lessons learned in the previous programs to implement a multi-platform international program based on cooperation rather than integration.

This solicitation seeks the services of a qualified provider to facilitate and enhance the participation of the U.S. scientific community in the IODP. The initial period of the award, to be administered as a Cooperative Agreement, is intended to cover the period March 1, 2015 through February 28, 2020. A Program review will be held prior to completion of the initial period and the results will guide a decision to either re-compete or renew the Cooperative Agreement for a second five-year period.

**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.*

- Thomas Janecek, Program Director, OCE, W8136, telephone: (703) 292-5393, email: [tjanecek@nsf.gov](mailto:tjanecek@nsf.gov)
- James Allan, Program Director, OCE, W8154, telephone: (703) 292-8144, email: [jallan@nsf.gov](mailto:jallan@nsf.gov)

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

- 47.050 --- Geosciences

## Award Information

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**Anticipated Type of Award:** Cooperative Agreement

**Estimated Number of Awards:** 1

**Anticipated Funding Amount:** \$35,000,000 for the period March 1, 2015 through February 28, 2020, pending availability of funds.

## Eligibility Information

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**Who May Submit Proposals:**

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.
- 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.

**Who May Serve as PI:**

There are no restrictions or limits.

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

There are no restrictions or limits.

**Limit on Number of Proposals per PI or Co-PI:**

There are no restrictions or limits.

## Proposal Preparation and Submission Instructions

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**A. Proposal Preparation Instructions**

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**
  - Full Proposals submitted via FastLane: *NSF Proposal and Award Policies and Procedures Guide (PAPPG)* guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).
  - 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: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](https://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. submitter's local time):

June 30, 2014

## 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:

Standard NSF reporting requirements apply.

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## I. INTRODUCTION

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Scientific ocean drilling is an important capability in modern geoscience research and education. Its broad use as a scientific tool ranges from investigating the causes of change in the earth's climate to the rifting and drifting of continents. Drilling is the primary method of sampling sediment and crustal rock from the large percentage of the earth's surface covered by oceans, and is the only technique for sampling anything more than a few tens of meters below the ocean floor.

The Deep Sea Drilling Project, which began in 1968 under NSF sponsorship served as a test of the plate tectonic hypothesis and a basic reconnaissance of deep-sea sediments and crustal rocks. In 1974, the Deep Sea Drilling Project became an international program, with several European nations, Japan, and the USSR entering into agreements with the NSF to participate scientifically and financially. The Deep Sea Drilling Project was followed by the Ocean Drilling Program in 1985, which provided a focused examination of earth, ocean and climate processes. International participation in planning, research and funding of operations grew from an initial five countries in the Deep Sea Drilling Project to over 20 nations by the end of the Ocean Drilling Program in 2003. The NSF provided the primary facility for both the Deep Sea Drilling Project and the Ocean Drilling Program, by contracting and converting industry drill ships for scientific drilling - the *Glomar Challenger* and the *JOIDES Resolution*, respectively. Over the preceding decade, the NSF participated in the Integrated Ocean Drilling Program, designed to address scientific objectives related to (1) understanding the deep

biosphere and subsea floor ocean, (2) environmental change, and (3) solid earth cycles and geodynamics. The United States and Japan served as co-leads, with membership from 23 other countries. Japan constructed a heavy riser drillship for the Integrated Ocean Drilling Program (Drilling Vessel or D/V *Chikyu*), the United States contributed a leased, lighter vessel (D/V *JOIDES Resolution*), and the European Consortium for Ocean Research Drilling (ECORD) contributed Mission Specific Platforms for shallow water and Arctic drilling.

During the last two years of the Integrated Ocean Drilling Program, the international partners conducted a major restructuring and simplification of the program to streamline program management and reduce costs. The International Ocean Discovery Program (IODP), which commenced October 1, 2013, utilized this restructuring to build a multi-platform international program based on cooperation rather than integration. The three distinct platform types (*JOIDES Resolution*, *Chikyu*, and Mission Specific Platforms) are now funded and managed independently by the respective countries and consortia. The IODP Science Plan, *Illuminating Earth's Past, Present, and Future: The International Ocean Discovery Program Science Plan for 2013-2023* (<http://www.iodp.org/program-documents>), provides justification for the United States' participation in the IODP and reflects the top priorities of the international science community. These priorities include borehole observatories to study fundamental aspects of the deep biosphere, high-resolution studies of past climate at high latitudes, and studies of collisional plate boundaries, such as Cascadia, that periodically generate giant earthquakes and tsunamis.

Operational planning for the U.S. facility in the IODP, the *JOIDES Resolution*, is conducted by the *JOIDES Resolution* Facility Board (JRFB), which consists of scientists and governmental representatives of nations contributing to *JOIDES Resolution* operations, as well as representatives of the *JOIDES Resolution* science operator. The JRFB is advised by a Science Evaluation Panel (SEP) and an Environmental Protection and Safety Panel (EPSP). The IODP Science Support Office provides logistical support for the JRFB and its advisory panels, manages and archives IODP drilling proposals and oversees their external review, and manages a site-survey database.

As with the previous scientific drilling programs, each member country will be required to independently provide support for the research effort of its scientists participating in the program. In the Integrated Ocean Drilling Program, elements of this support were provided through a Cooperative Agreement with Consortium for Ocean Leadership, for the U.S. Science Support Program. This solicitation seeks to continue and to build on past successes by establishing a similar support program for the U.S. scientific community during the International Ocean Discovery Program for the period from March 1, 2015 to February 28, 2020. A Program review will be held prior to completion of the initial period and the results will guide a decision to either re-compete or renew the Cooperative Agreement for a second five-year period.

## II. PROGRAM DESCRIPTION

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It is the intent of the NSF's Division of Ocean Sciences (NSF-OCE), within available resources, to provide robust and effective participation of the U.S. scientific community in the IODP. Through this solicitation, the NSF-OCE is seeking to enter into a Cooperative Agreement with an organization to administer parts of that support by establishing the U.S. Science Support Program associated with the IODP (USSSP-IODP). The support provided through USSSP-IODP is intended to complement the direct support to the scientific community that the NSF will provide through its grants program in response to unsolicited proposals. The U.S. scientific community has long played a strong leading role in scientific ocean drilling, in terms of planning activities, drilling operations, and producing important scientific results. Responsibility for that success has been due, in large part, to the effectiveness of the existing U.S. Science Support Program. USSSP-IODP is intended to further that tradition in the International Ocean Discovery Program. Proposals submitted in response to this solicitation should address the following support activities:

### 1. Program Development and Planning

USSSP-IODP will support planning activities that develop program concepts and refine the major long-range objectives as outlined in the IODP science plan, *Illuminating Earth's Past, Present, and Future: The International Ocean Discovery Program Science Plan for 2013-2023* (<http://www.iodp.org/program-documents>). It will also establish within the U.S. scientific community the means whereby new ideas, approaches, and proposals relevant to scientific ocean drilling can take advantage of and optimize the science that is possible utilizing the principal IODP platforms. These activities will include, but not be limited to, sponsorship of topical thematic and regional workshops and symposia.

USSSP-IODP should provide the required support for U.S. scientists to effectively participate in the *JOIDES Resolution* Facility Board, advisory panels, committees, and international conferences on scientific ocean drilling. This support will include travel and *per diem*, and, when determined to be appropriate and within the terms of the Cooperative Agreement, salaries. Specific participation levels for U.S. scientists on the *JOIDES Resolution* Facility Board and Advisory Panels are provided in the *JOIDES Resolution* Advisory Panel Terms of Reference (<http://www.iodp.org>).

### 2. Pre-Drilling Activities

USSSP-IODP should provide support for:

- o Participation of U.S. scientists on ships of opportunity to collect site-specific data deemed critical by the *JOIDES Resolution* Facility Board or its advisory panels.
- o Activities required to integrate or refine site-specific and/or regional data or information that aid in short-term or long-term IODP planning.

### 3. Expedition Participation

USSSP-IODP will support participation of U.S. scientists on expeditions on all IODP platforms. The number of U.S. scientists is estimated at eight per each *JOIDES Resolution* expedition, with an expectation of four IODP *JOIDES Resolution* expeditions per year. A combined total of eight U.S. scientists are eligible to

participate on the ship- and shore-based portions of each Mission Specific Platform (MSP) expedition, with an expectation of one MSP expedition per year. Approximately sixteen U.S. scientists, in total, are eligible to sail each year on *Chikyu*.

U.S. platform participation support should include:

- o Travel to and from the vessel.
- o Pre- and post- cruise meeting travel to meet expedition requirements.
- o Salary for U.S. scientific party members for time on board vessels and participation in post-cruise meetings to fulfill expedition requirements (e.g., post-cruise editorial meetings)
- o Salary for U.S. co-chief scientists. Salary support should reflect the level of effort and responsibilities for successful expedition planning, implementation, research coordination, and synthesis and publication of expedition results.
- o Support directed towards completing the analyses and measurements required to meet expedition requirements and objectives or for initiating projects critical to mission success.

#### 4. Post Expedition Research

Scheduled drilling expeditions are the result of highly ranked and important science objectives. Optimizing the success of these research objectives will require additional resources from those provided under the Cooperative Agreement that results from this solicitation. Since the level of support that might be required to meet these research objectives could be significant, it is the intention of the NSF-OCE to entertain unsolicited proposals from U.S. expedition participants to fulfill these research objectives. The intent is to evaluate these proposals through the NSF peer review process and make timely funding decisions. Support for the activities described in this paragraph are not part of this solicitation.

#### 5. Outreach and Education Activities

USSSP-IODP will keep the U.S. scientific community fully apprised of IODP plans and developments. It should do this through a variety of methods such as, but not limited to, web sites, newsletters, and mail servers.

The awardee will promote diversity and encourage participation from under-represented groups on IODP expeditions, advisory panels, committees, and planning and thematic workshops.

USSSP-IODP should encourage and support graduate student participation on drilling expeditions and planning, thematic, and training workshops.

Education and Outreach activities of modest scope that utilize the IODP drilling platforms will be supported, with the total effort (direct costs and salary) of these activities expected to be less than \$500,000 per year.

#### 6. Coordinating Structure and Management Plan

USSSP-IODP will implement a planning and management structure that can provide, within available resources, optimal participation of the U.S. scientific drilling community in all aspects of activities listed in this solicitation.

The proposal should identify a qualified Project Director familiar with the U.S. scientific drilling community and academic research in marine geology and geophysics, whose responsibilities will include the overall management and coordination of the USSSP-IODP.

The awardee will be expected to establish a proactive body for the oversight of U.S. national participation in IODP and to provide guidance for activities associated with USSSP-IODP. This coordinating body should be representative of the U.S. scientific ocean drilling community and its interests.

The work under the Cooperative Agreement will be carried out in accordance with an Annual Program Plan developed by the awardee in consultation with the NSF/ODP Program Officer.

### III. AWARD INFORMATION

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- Anticipated Type of Award: Cooperative Agreement
- Estimated Number of Awards: 1
- Anticipated Funding Amount: \$35,000,000 for the period March 1, 2015 through February 28, 2020, pending availability of funds.

### IV. ELIGIBILITY INFORMATION

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#### Who May Submit Proposals:

Proposals may only be submitted by the following:

Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.

- 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.

**Who May Serve as PI:**

There are no restrictions or limits.

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

There are no restrictions or limits.

**Limit on Number of Proposals per PI or Co-PI:**

There are no restrictions or limits.

**Additional Eligibility Info:**

Proposals will be accepted from U.S. academic institutions and U.S non-governmental, non-profit organizations familiar with academic geoscience research and the geoscience community. Familiarity with the scientific drilling community, its goals and aspirations is necessary. The successful proponent will have the organizational infrastructure, experience and demonstrated managerial capability to provide the support to the scientific drilling community defined in the solicitation. Experience in developing outreach and educational programs is required.

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## V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

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### 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 Proposal & Award Policies & Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg). Paper copies of the PAPPG 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: ([https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](https://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. PAPPG Chapter II.D.3 provides additional information on collaborative proposals.

See PAPPG Chapter II.C.2 for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the PAPPG instructions.

The following information deviates from the GPG or NSF Grants.gov Application Guide guidelines. Up to seventy-five (75) pages will be allowed in the Project Description. The following items should be included in the Project Description:

- Project Director, staff, and business capabilities to execute the requirements of this solicitation.
- Mechanism for constituting a USSSP-IODP advisory body representative of the U.S. scientific drilling community.
- Plans and methods for engaging the USSSP-IODP advisory body to maximize advice and input that reflects the support needs of the U.S. scientific drilling community in IODP.
- A modest, innovative education and outreach program, that takes advantage of and leverages the efforts of the IODP Implementing Organizations and their platforms.
- Mechanisms for engaging/liasing with other IODP Program Member Offices and other relevant IODP entities.
- Mechanisms by which awardee will evaluate their effectiveness and performance at implementing the various elements of this

solicitation.

## 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. submitter's local time):

June 30, 2014

## D. FastLane/Grants.gov Requirements

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### For Proposals Submitted Via FastLane:

To prepare and submit a proposal via FastLane, see detailed technical instructions 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.

### 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://www.grants.gov/web/grants/applicants.html>. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical 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.

Proposers that submitted via FastLane are strongly encouraged to use FastLane to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

## VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

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Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. 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 either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with 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. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in PAPPG Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: [https://www.nsf.gov/bfa/dias/policy/merit\\_review/](https://www.nsf.gov/bfa/dias/policy/merit_review/).

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Building the Future: Investing in Discovery and Innovation - NSF Strategic Plan for Fiscal Years (FY) 2018 – 2022*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse

STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which 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.

## A. Merit Review Principles and Criteria

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The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

### 1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

### 2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (PAPPG Chapter II.C.2.d(i). contains additional information for use by proposers in development of the Project Description section of the proposal). Reviewers are strongly encouraged to review the criteria, including PAPPG Chapter II.C.2.d(i), prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
  - a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
  - b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific

knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

#### **Additional Solicitation Specific Review Criteria**

Reviews will focus on:

- Evaluating the proponents and their organization's structure, competence, and overall ability to provide service and support to the community of Earth and Ocean sciences.
- Thoroughness of the proposal in addressing the various elements of support identified in the solicitation.
- How well the proposal achieves appropriate balance of resource allocation.
- How well the proposal addresses the plans and mechanisms to identify and support the needs of the U.S. scientific community in IODP.

## **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.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be completed and submitted by each reviewer and/or panel. 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 strives to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new awardees may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

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. After an administrative review has occurred, Grants and Agreements Officers perform 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.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, 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.

## **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 notice, 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 notice; (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 notice. 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 [https://www.nsf.gov/awards/managing/award\\_conditions.jsp?org=NSF](https://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 Proposal & Award Policies & Procedures Guide (PAPPG)* Chapter VII, available electronically on the NSF Website at [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).

## **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 no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following 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 all identified PIs and co-PIs on a given award. 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 Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also 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.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the *NSF Proposal & Award Policies & Procedures Guide (PAPPG)* Chapter VII, available electronically on the NSF Website at [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).

## **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:

- Thomas Janecek, Program Director, OCE, W8136, telephone: (703) 292-5393, email: [tjanecek@nsf.gov](mailto:tjanecek@nsf.gov)
- James Allan, Program Director, OCE, W8154, telephone: (703) 292-8144, email: [jallan@nsf.gov](mailto:jallan@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, "NSF Update" is an information-delivery system 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 [Grants Conferences](#). Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on [NSF's website](#).

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

## **ABOUT THE NATIONAL SCIENCE FOUNDATION**

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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* (FASSED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the *NSF Proposal & Award Policies & Procedures Guide* Chapter II.E.6 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

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 <https://www.nsf.gov>

- **Location:** 2415 Eisenhower Avenue, Alexandria, VA 22314
- **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: [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov)
  - or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

## PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, *NSF-50*, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and *NSF-51*, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton  
Reports Clearance Officer  
Office of the General Counsel

National Science Foundation  
Alexandria, VA 22314

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