

Competition for the Management and Operation of the National Center for Atmospheric Research

PROGRAM SOLICITATION

NSF 17-550



National Science Foundation

Directorate for Geosciences
Division of Atmospheric and Geospace Sciences

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

August 07, 2017

IMPORTANT INFORMATION AND REVISION NOTES

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) ([NSF 17-1](#)), which is effective for proposals submitted, or due, on or after January 30, 2017.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Competition for the Management and Operation of the National Center for Atmospheric Research (NCAR)

Synopsis of Program:

The National Science Foundation is soliciting proposals for the management and operation of the National Center for Atmospheric Research (NCAR). NCAR, an NSF Federally Funded Research and Development Center (FFRDC), is a center of excellence supporting the atmospheric, geospace and broader Earth sciences communities. NCAR operates world-class observational facilities and computing infrastructure, conducts extensive in-house research, maintains vigorous programs of education, outreach, and the promotion of diversity, and cultivates extensive national and international collaborations. NCAR also carries out research and development on behalf of other organizations, most commonly other U.S. Government agencies. This work, which can only be undertaken if it supports the NCAR mission, currently accounts for approximately 30% of NCAR's total funding.

The awardee will work closely with NSF and the university community to ensure that NCAR continues to support, sustain and advance the atmospheric, geospace and related sciences, including the promotion of a diverse STEM workforce. The awardee will manage and develop the NCAR staff, buildings and facilities, and will promote an ambitious, coherent and inclusive program of research and education.

A single award will be made as a cooperative agreement with a duration of five years beginning on 1 October 2018. NSF may renew the award for an additional five-year term, subject to availability of funds and the awardee's satisfactory performance, and in compliance with the National Science Board Statement on Recompensation of Major Facilities ([NSB 2015-45](#) or successor).

Point of Contact:

- Sarah L. Ruth, Section Head, AGS, telephone: (703) 292-7594, email: sruth@nsf.gov
- Linnea M. Avallone, Program Director, NCAR and Facilities Section, telephone: (703) 292-8521, email: lavallon@nsf.gov
- Kristin Spencer, Grants and Agreements Officer, telephone: (703) 292-4585, fax: (703) 292-9140, email: kspencer@nsf.gov

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

- 47.050 --- Geosciences

Award Information

Anticipated Type of Award: Cooperative Agreement

Estimated Number of Awards: 1

Anticipated Funding Amount: \$500,000,000

The amount available under the next cooperative agreement will depend upon the availability of annual appropriations and on the performance of the awardee and NCAR. In FY 2016, NCAR's base funding from NSF was \$99,700,000. NCAR also receives additional funding from NSF and other sources for specific science programs, facilities and services. The annual amounts vary considerably, but in FY 2016 NCAR received \$9,600,000 of additional NSF award funding, and \$63,200,000 from other federal and non-federal sources. These non-base activities are not included in the anticipated award amount and should not be

included in the proposal budget.

Eligibility Information

Who May Submit Proposals:

- 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.
- Any U.S. industrial firm operating as an autonomous organization or as an identifiable separate non-profit operating unit of a parent organization.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization: 1

Limit on Number of Proposals per PI or Co-PI: 1

Proposal Preparation and Submission Instructions

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=papp.
 - 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:**

Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

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

August 07, 2017

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

[Summary of Program Requirements](#)

- I. **Introduction**
- II. **Program Description**
- III. **Award Information**
- IV. **Eligibility Information**
- V. **Proposal Preparation and Submission Instructions**
 - A. [Proposal Preparation Instructions](#)
 - B. [Budgetary Information](#)
 - C. [Due Dates](#)
 - D. [FastLane/Grants.gov Requirements](#)
- VI. **NSF Proposal Processing and Review Procedures**
 - A. [Merit Review Principles and Criteria](#)
 - B. [Review and Selection Process](#)
- VII. **Award Administration Information**
 - A. [Notification of the Award](#)
 - B. [Award Conditions](#)
 - C. [Reporting Requirements](#)
- VIII. **Agency Contacts**
- IX. **Other Information**

I. INTRODUCTION

NSF established the National Center for Atmospheric Research (NCAR) in 1960 in Boulder, Colorado, as a center of excellence providing research, facilities and services in support of the atmospheric and broader geosciences communities. As an NSF-sponsored Federally Funded Research and Development Center (FFRDC), NCAR upholds and advances the mission, values and goals set out in the NSF Strategic Plan (https://www.nsf.gov/about/performance/strategic_plan.jsp).

NCAR is currently managed, through a cooperative agreement with NSF, by the University Corporation for Atmospheric Research (UCAR). The present cooperative agreement became effective on 1 October 2013 and expires on 30 September 2018. This solicitation invites proposals for the management and operation of NCAR for the five-year period from 1 October 2018 – 30 September 2023. NSF may renew the award for an additional five-year term, subject to availability of funds and the satisfactory performance of the awardee, and in compliance with the National Science Board Statement on Recompetition of Major Facilities ([NSB 2015-45](#) or successor).

During this award period, the awardee will ensure that NCAR continues to serve as a unique and world-leading institution that supports, sustains and advances the atmospheric, geospace and related science communities through the provision of state-of-the-art observational, computational and modeling facilities and services, and by conducting fundamental and transformative research at the frontiers of current knowledge. The managing organization will be responsible for operating and maintaining the NCAR buildings and facilities, developing and incorporating new facilities, planning for future new initiatives, recruiting, developing and retaining a highly competent and diverse workforce, in addition to sustaining an innovative and vigorous program of basic and applied research in support of the atmospheric, geospace and related sciences. NSF expects that the managing organization will promote a culture of excellence in serving the scientific community and will foster an exemplary approach to the development of increased diversity and inclusiveness in STEM education and the geosciences workforce.

II. PROGRAM DESCRIPTION

A. Mission and Goals of the National Center for Atmospheric Research

Mission

The NCAR mission is:

- *To understand the behavior of the atmosphere and related Earth and geospace systems;*
- *To support, enhance and extend the capabilities of the university community and the broader scientific community, nationally and internationally;*
- *To foster the transfer of knowledge and technology for the betterment of life on Earth.*

To fulfill this mission, NCAR, working in close collaboration with the university and broader scientific community, is required to:

- Build, operate and maintain state-of-the-art shared observational facilities, computational infrastructure and databases, and make them accessible to the community on an equitable basis;
- Serve as stewards of high quality scientific data on behalf of the community, ensuring that the data are discoverable, available, accessible and secure;
- Enhance the ability of the community to collectively explore, develop and extend its ideas through, for example, facilitation of collaborations and partnerships, coordination of workshops and observational studies, and provision of unique tools and services;
- Facilitate the definition, construction, continued improvement, use of and access to advanced numerical models, in particular where these support community-wide collaborations;
- Enable the education and development of diverse human capital for the atmospheric, geospace and related sciences, including those groups that are underrepresented in the U.S. science and engineering workforce;
- Attract, support and advance a high quality, diverse scientific, technical and management staff and provide them with continued training and career advancement to achieve an exemplary workforce, as befits a national center;
- Foster interdisciplinary and multidisciplinary research that will advance the frontiers of knowledge;
- Address challenging scientific problems that require long-term focus and integration across multiple temporal and spatial scales;
- Apply scientific understanding to recognized and emerging problems with significant national relevance;

- Integrate research and education throughout NCAR's programs;
- Transfer developed technology to the U.S. Government and the private sector, as appropriate, while maintaining free access to research data;
- Operate with integrity and transparency, maintaining the highest standards of quality in performance of administration and management.

Strategic Goals

The NCAR strategic plan sets out NCAR's goals and priorities, and guides the infrastructure, services and research support provided by the Center. It is developed in close consultation with the scientific community and must be approved by NSF. The current NCAR strategic plan, *National Center for Atmospheric Research 2014-2019 Strategic Plan*, is available at https://ncar.ucar.edu/sites/default/files/NCAR_Strat_Plan_Final_102014.pdf

B. Description of NCAR

NCAR's principal offices and laboratory facilities are located in Boulder, Colorado. The NCAR-Wyoming Supercomputing Center (NWSC), which houses NCAR's supercomputing facilities, is located near Cheyenne, Wyoming.

The NSF-owned facilities occupied by NCAR are:

- the Mesa Laboratory and Fleischmann Building, which occupy a 450-acre site in Boulder;
- two hangars and an office building at Rocky Mountain Metropolitan Airport in Broomfield, Colorado;
- an 80-acre field site in Marshall, Colorado, which has limited infrastructure and houses some experimental facilities and storage; and
- a high altitude observatory at Mauna Loa, Hawaii.

UCAR holds title to NWSC. NSF retains discretion to transfer title to NWSC to the extent that to a subsequent, successor awardee intends to rely on NWSC for fulfilling relevant parts of NCAR's mission. UCAR provides additional office and laboratory space at the Foothills and Center Green campuses in Boulder.

The NCAR staff currently comprises about 760 FTE including scientists, engineers, visiting researchers and students, and administrative staff. Approximately 65% of the total FTE are engaged in NSF-funded work, with the remainder in programs supported by other sources.

The NCAR website, <http://www.ncar.ucar.edu>, provides details of the NCAR facilities and programs. The NCAR annual report (<https://ncar.ucar.edu/2016/ncar/2016-ncar-annual-report>) presents highlights and achievements from 2016.

Facilities and Services

NCAR maintains and operates a range of NSF-owned observing facilities that support the university and broader research community. These include a highly modified Gulfstream V jet aircraft, a C-130 turboprop aircraft, specialized Doppler weather radars, lidar systems and a variety of instruments for measuring atmospheric state parameters and composition that can operate in conventional settings, remote field locations, or, in some cases, onboard aircraft.

NCAR also maintains and leads the development of a number of sophisticated numerical models, most notably the Community Earth System Model (CESM) and the Weather Research and Forecasting model (WRF), which each have many thousands of users. These models and other computationally-intensive activities are underpinned by supercomputing facilities, data-storage archives, and computer support services available to NSF grantees and others in the research community.

Education and Diversity

NCAR is expected to play a substantial role in supporting the NSF goal to promote and develop a diverse and skilled scientific workforce, both in its own staff and in the broader scientific community. To this end, NCAR operates a vigorous program of education, outreach and community development activities that includes collaborative partnerships with minority-serving institutions, networks for early-career faculty and resources for educators.

Research Program

The NCAR research program is carried out in close partnership with the academic community and seeks to improve understanding and prediction of the Earth's whole atmosphere, also considering connections to the land surface, snow and ice, oceans, biosphere, and inputs from the Sun. While much of the work is cross-cutting, the primary components of the NCAR research program include observations and modeling of atmospheric composition; cloud physics, storm structure and dynamics, and prediction of weather and climate across dynamical scales; the Sun-Earth system, including solar physics and space weather; innovation in computation for modeling, data analysis and visualization; development and operation of advanced observational tools for sampling the composition and state of the atmosphere; and creation of engineering solutions for areas of societal importance, such as aviation, renewable energy and water resources. More detailed descriptions of the research program of NCAR can be found at the Center's website: <http://ncar.ucar.edu>.

C. Description of Awardee Responsibilities

NSF intends that NCAR should serve as an exemplar of management excellence. The awardee will be responsible for the overall performance of NCAR and for ensuring that, within the resources available, NCAR fulfills all aspects of its mission with a visionary and productive scientific program of world-class services, infrastructure and research in support of the U.S. atmospheric, geospace and broader science communities. The NCAR program should embody the NSF strategic vision: *a Nation that creates and exploits new concepts in science and engineering and provides global leadership in research and education.*

The awardee will plan, execute, staff and manage the NCAR program, provide and maintain advanced facilities and services, sustain an expert, diverse workforce, and oversee the conduct of basic and applied research in support of the atmospheric and related sciences. The awardee will work closely with NSF and the atmospheric, geospace and broader science communities to ensure that the activities carried out at the Center strongly reflect their needs and priorities, and that support is provided equitably throughout the scientific research and education communities. Reflecting NSF's core values, the awardee will actively promote inclusiveness, seeking and embracing contributions from all sources, including underrepresented groups, regions and institutions.

The awardee will be responsible for activities supported by both NSF and NCAR's other program funders. Non-NSF-funded NCAR programs managed by the awardee must contribute to the NCAR mission and must complement and enhance activities funded and approved by NSF.

The awardee will be expected to meet the highest standards for service and delivery to the scientific community and to demonstrate a proactive and effective approach to performance management. The awardee should develop and use an appropriate, comprehensive assessment methodology to underpin an effective performance management culture for the Center and to monitor and improve the awardee's interactions with NSF and NCAR's primary stakeholders. The awardee should operate and maintain the NCAR buildings and facilities and manage the NCAR staff and all activities carried out at the Center according to current best practices and in full compliance with all relevant laws and regulations.

1. Ensuring NCAR's excellence as a national center

The primary responsibility of the awardee is to ensure and demonstrate that NCAR fulfills its mission as a national center; in particular, to support, enhance and extend the capabilities of the university community and the broader scientific community, nationally and internationally. At the same time, the awardee must ensure that NCAR staff, collectively, maintain a leadership role in the science of importance to the atmospheric, geospace and related communities while executing an innovative and ambitious scientific program. NCAR's service to and support of the research community must be provided equitably and products arising from these activities (such as publications, data, model output, etc.) should be openly accessible and have a significant impact beyond NCAR itself.

The awardee should facilitate the creation, implementation and evaluation of NCAR's Strategic and annual Operating Plans, in close consultation with NSF and NCAR's stakeholders. It must ensure that NCAR addresses the needs of the atmospheric and geospace communities that could not be met without the capabilities and facilities particular to a national center, while not duplicating those present at universities or other centers. The awardee is expected to develop and employ effective mechanisms for engaging the Center's stakeholders, primarily institutions of higher education, but also, as appropriate, government laboratories and agencies, and the private sector, in order to make sure that NCAR's facilities, services and programs best reflect the evolving needs and priorities of the community. The awardee is expected to have in place appropriate mechanisms for ensuring the organizational agility to meet evolving needs in a constrained budget environment. The awardee must pay particular attention to positioning NCAR to address, in collaboration with the academic community, pressing societal and research questions in Earth System science across a range of spatial and temporal scales.

2. *Education, Outreach and Promotion of Diversity*

The broad range of NCAR's scientific research, facilities and other programs offers significant potential to promote diversity and to engage in a vibrant program of education, outreach and workforce development. These activities must be strategic in nature, with clear goals, and be integrated with NCAR's research and facility programs. They should, further, actively support the NSF strategic goal of cultivating a world-class, broadly inclusive science and engineering workforce and expanding the scientific literacy of all citizens. The awardee is expected to develop appropriate evaluation mechanisms to demonstrate the impact of NCAR's education, outreach and other programs on the atmospheric, geospace and related research communities.

3. *Business and Financial Management*

The awardee will be responsible for all aspects of the business and financial management of NCAR, including accounting, payroll, awards management, travel, information technology and export compliance. The awardee must operate with integrity, transparency and a high level of accountability, with careful attention to long-term planning and risk management.

4. *Staffing and Personnel Management*

The awardee will be responsible for recruiting, retaining and developing a high-quality and diverse scientific, technical, administrative and managerial staff, consistent with the NSF goal of cultivating a world-class, highly inclusive science and engineering workforce. The awardee's personnel policies and workforce management plan should foster excellence among NCAR staff and provide opportunities for the development of both technical and business-related skills, such as project management, staff supervision and promotion of diversity.

5. *Management and Stewardship of Physical Infrastructure*

The awardee will be responsible for maintaining of all of NCAR's physical infrastructure, including buildings and observational and computational facilities. The awardee will create, budget, schedule and track comprehensive maintenance, safety and environmental compliance plans for all infrastructure that is used in support of NCAR, including both government-titled and awardee-owned facilities. The awardee will engage in long-range planning activities to ensure that the Center's infrastructure is appropriate to meet emerging needs.

6. *Partnerships*

Partnerships between NCAR and the academic community, the private sector, government agencies and international organizations are essential to the success of NCAR's mission. The awardee should implement strategic partnerships with U.S. educational institutions, federal, non-federal and international entities that will enhance the scientific capabilities and support available to the atmospheric, geospace and related research communities, ensuring that they extend equitably to all of NCAR's stakeholders, especially academic institutions. As noted in the Award Information section of this solicitation, NCAR receives a sizeable amount of non-NSF funding. The awardee must establish, in consultation with NSF, clear criteria for which non-NSF projects NCAR pursues, ensure that these programs complement and support NCAR's mission, and identify and mitigate risks associated with non-NSF funding. The awardee is encouraged to seek out appropriate technology transfer opportunities.

D. General Information

Resource Library

Additional information about NCAR can be found in the Resource Library associated with this solicitation. Proposing organizations should note especially the following documents, made available in the library but redacted for any confidential information:

- Current Cooperative Agreements, Annual Reports and Program Plans
- Inventories of NSF- and non-NSF-owned equipment associated with NCAR
- Memoranda of Understanding and similar agreements
- Multi-year contracts
- NSF Large Facilities Manual and Cost Estimating guidance
- NSF Data policies
- Frequently Asked Questions (FAQs)

Any additional materials and information related to this solicitation, including NSF responses to all pertinent questions, will be made available through the Resource Library as appropriate. It is the responsibility of the proposing organization to check for new documents during the open period of the solicitation.

For access to the Resource Library, proposing organizations should contact the Grants and Agreements Specialist, Kristin Spencer (kspencer@nsf.gov). Access will be subject to NSF discretion with use of the information limited to consideration and/or preparation of a proposal to this solicitation.

Informational Site Visit

Any organization that is considering submitting a proposal and is interested in attending a site visit to NCAR (in Boulder, Colorado) should contact Kristin Spencer in writing by 1 June 2017. A site visit will provide an opportunity for potential proposers to view the Center's buildings and facilities. If conducted, the site visit will be managed by NSF staff. Attendees will be responsible for their own expenses.

III. AWARD INFORMATION

One award will be made for the management and operation of NCAR for five years beginning on 1 October 2018. The successful proposal will be awarded a Cooperative Agreement that will include one or more Cooperative Support Agreements for specific activities under the Cooperative Agreement. Any renewal after the initial five-year period will be contingent on availability of funds and the awardee's satisfactory performance, and will be compliant with the National Science Board Statement on Recompensation of Major Facilities ([NSB 2015-45](#) or successor).

If a new awardee is selected to replace the incumbent, NSF will additionally fund appropriate, reasonable and allocable transition costs through a Cooperative

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

- 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.
- Any U.S. industrial firm operating as an autonomous organization or as an identifiable separate non-profit operating unit of a parent organization.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization: 1

Limit on Number of Proposals per PI or Co-PI: 1

Additional Eligibility Info:

Proposals Involving Multiple Organizations

One organization must be identified as the lead, and that organization must submit a single proposal describing the entire project. Funds may be distributed among partner organizations via subawards from the lead organization. **Separately submitted collaborative proposals will not be accepted.** A budget in the standard NSF format available in the NSF FastLane system should be submitted for each subawardee. See the PAPPG for additional requirements regarding subawardees.

Proposers are reminded of their responsibilities with regard to subawardees. Should an award be made, the lead organization will be responsible for managing and overseeing all subawardees and ensuring the flow-down of the applicable NSF terms and conditions. Proposers are strongly advised to discuss these requirements with prospective subawardees before including them in the proposal.

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 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=papp. 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. 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.

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 full proposal must conform to the guidelines specified in the PAPPG or the NSF Grants.gov Application Guide, except where specified in this solicitation.

Type of Proposal - The "Center/Research Infrastructure" type of proposal should be selected in the proposal preparation module in FastLane or Grants.gov.

Proposers are reminded to review procedures under "Proprietary or Privileged Information" in Chapter II.D.1 of the PAPPG and to mark only such information, including patentable ideas, trade secrets, privileged or confidential commercial or financial information, disclosure of which might harm the proposer, with the appropriate legend such as, "The following is (proprietary or confidential) information that (name of proposing organization) requests not be released to persons outside the Government, except for purposes of review and evaluation." Please also see the section entitled "Privacy Act and Public Burden Statements" below.

Single Copy Documents - NSF requires the following information to determine collaborators and affiliations for the review process.

a. Collaborators and Other Affiliations Information: Information regarding collaborators and other affiliations must be provided separately for all PIs, co-PIs, named senior personnel, subrecipients who would receive funds through the award, and all known individuals who would act as external advisory committee members for NCAR. This information must be provided in the format specified in Chapter II.C.1.e of the NSF PAPPG and entered in the Single Copy Document section of FastLane under "Collaborators and Other Affiliations."

b. Project Personnel: Provide the full names, affiliations, educational background, and specific role for each person who is listed by name in the budget, including all PIs, co-PIs, named senior personnel, and/or subrecipients. The information should be entered in the Single Copy Documents section in Fastlane as "Additional Single Copy Documents."

Project Description - The Project Description section of the full proposal **should contain the information specified below, in the order listed, and be limited to no more than 100 pages.**

Each proposal should describe the proposing organization's scientific, technical and managerial qualifications to operate and manage NCAR by addressing the topics in Sections II.C.1-II.C.6 of the solicitation, Description of Awardee Responsibilities. The proposal should clearly demonstrate how the managing organization would develop and execute a program of services, facilities and research that would support and enhance the atmospheric, geospace and related scientific communities (particularly the university sector). Use the 2014-19 NCAR Strategic Plan (https://ncar.ucar.edu/sites/default/files/NCAR_Strat_Plan_Final_102014.pdf) as a starting point.

The proposing organization should be sure to include the following in its response:

- Organizational structure for the Center, including its remote facilities and administrative and business functions. Describe roles, lines of authority, communications and accountability. Describe the oversight of each facility and significant program area. Include a clear discussion of how the planned organization will best serve the diverse needs of the science to be performed by NCAR.
- Structure of the managing organization. Identify the parent organization, if any, and the level of commitment by the parent organization to NCAR support. Identify any major subawardees and subcontractors, clearly noted as such, along with their purpose and responsibilities.
- A high level plan for implementing and monitoring business systems and internal controls for financial management and human resources, property standards, procurement standards, reporting and records management, including compliance with relevant environmental regulations, risk management, and health and safety.
- Processes for planning, review and performance management within a structured framework, including the development and use of an appropriate suite of metrics that will aid both the managing organization and NCAR's stakeholders in assessing the performance of the Center and identifying areas for improvement.

Biographical Sketches - A resume, limited to 2 pages, must be provided for the PI, each co-PI, all Key Personnel, and any other senior personnel, as required in PAPPG Chapter II.C.2.f.

Budget - See the instructions in Section V.B below.

Facilities, Equipment and Other Resources - This section is not required for this program solicitation. All relevant information must be provided in the Project Description and Supplementary Documentation sections. Please note that proposers will receive a warning message from FastLane.

Supplementary Documentation - Except as specified in this solicitation or in the NSF PAPPG (see Chapter II.C.2.j), any special information relevant to determining the quality of the proposed work must be included as part of either the Project Description or the budget justification.

a. Documentation of collaborative arrangements of significance to the proposal: Proposers should document with formal memoranda/letters of collaboration any collaborative arrangements of significance in performing the proposed work. Letters of support are not permitted under this solicitation, and proposals containing such letters may be returned without review. Please see the NSF PAPPG Chapter II.C.2.d (iv) for further details.

b. Work Breakdown Structure Dictionary (text-searchable PDF up to 20 pages in length): Proposers will develop a document that provides detailed information about each element in the Work Breakdown Structure, such as a brief definition of the scope of work, deliverables, budget justification and schedule estimates, assessment measures, and milestones.

c. Transition Plan: Organizations other than the incumbent for a given capacity must provide, as a Supplementary Document not to exceed 15 pages, a detailed transition plan and budget for a transition period of up to 6 months following the new award. The transition plan must include at a minimum:

- A proposed duration and schedule for the transition period.
- Estimated resource needs for the transition period.
- Plans for personnel recruiting, orientation, and training.
- Plans for changes to staffing, facilities, or operational modes.
- A plan to acquire office infrastructure and manage the transfer of assets, inventory, commitments, plans, and documents.
- Identification of assumptions that underlie the transition plan.
- A detailed budget for the transition period, presented in accordance with instructions given in Section V.B.

d. Financial Capability: Proposing organizations must provide the following in support of the organization's financial condition, capability and organizational capacity:

1. A detailed description of business systems and internal controls for financial management and accounting systems, property standards, equipment standards, procurement standards, reporting and records.
2. Total compensation plan setting forth proposed salaries and fringe benefits for professional employees, with supporting information such as recognized national and regional compensation surveys, and studies of professional, public and private organizations used in establishing the total compensation structure.
3. If available, the organization's annual audited financial statements (e.g. Balance Sheet, Profit and Loss Statement and Annual Reports) for the three most recent fiscal years and/or other documentation to clearly explain its current financial strength and resource capability.
4. A current indirect cost rate proposal and supporting financial data. If the organization's indirect cost rates have been approved by another Federal agency, provide copies of such agreements.
5. A current CASB Disclosure Statement, if applicable.

Organizations that have not previously received NSF awards should review the NSF Prospective New Awardee Guide (https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pnag) and LFM revised version in the Resources Library for additional guidance in preparing their budget submissions.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

Proposing organizations may include a fee in their proposed budget for completion of the work effort under the award. The fee must be clearly identified as such in the budget justification. If submitting through Fastlane, fee is entered on line "G (6) Other", of the NSF budget form. Fee may not be burdened with indirect rate or any other costs. Fees will be evaluated for reasonableness by NSF using a structured approach as prescribed in Agency procedures.

NSF will provide guidelines for recipients that receive fee to encourage the utmost discretion and appropriate consideration in the use of fee, to include examples of inappropriate uses of fee (e.g., including but not limited to not using fee on alcoholic beverages or lobbying as set forth at 2 CFR § 200.450 and 48 CFR 31.205-22). NSF will reserve the authority to review a recipient's actual use of fee. Accordingly, recipients must separately track and account for uses of fee provided under NSF awards. The terms and conditions of the award will specify the fee arrangement including the basis for incremental fee payments. NSF will consider reductions in future fee if a recipient's actual use of fee is in contravention with the guidelines on inappropriate uses.

Budget Preparation Instructions:

The proposal should provide all staffing and budgeting information needed to describe how the organization would carry out the proposed activities. Requested budget amounts for each year of the proposal should reflect the level considered necessary to perform the NSF base-funded activities described in the proposal.

Proposing organizations are required to follow the instructions in the Proposal and Award Policies and Procedures Guide (PAPPG), effective January 30, 2017 (Budget and Budget Justification, section II.C.2.g, https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf17001).

Enter the anticipated total level of subrecipient support on line G5, Subawards, of the Fastlane budget or line F5 of the R&R Budget Form in Grants.gov. Proposals require the inclusion of separate budgets for subrecipient agreements with a budget justification and detailed explanation of the proposing organization's cost analysis of that budget, for a maximum of 3 pages each. Examples include budgeted months and salaries for personnel, quotations to support budgeted equipment, itemized listing of material and supplies with support quotations, statements of risk assessments and monitoring plans for each subrecipient, cost price analysis to support that the proposed subaward amounts are reasonable and copies of the subrecipient responsibility determinations, including adequacy of accounting system and financial capability.

Enter any contract support in the Other Direct Costs section of the Fastlane budget on line G1,2,3,4, or 6 (Materials and Supplies, Publications Costs/Documentation/Dissemination, Consultant Services, Computer Services or Other) as applicable, or on line F1,2,3,4, or 6 of the R&R Budget Form in Grants.gov. Do not enter contracts on the subawards line as contracts are used for the purpose of obtaining goods and services.

In addition to the Budget and Budget Justification, the proposing organization must submit a separate Justification of Costs by WBS for the first year of the Budget that breaks down program costs within each of the proposed functional areas, and demonstrates how they track or are otherwise related to specific Budget category. The organization will also break out full-time-equivalents by category and sub-element where possible, and track the information to labor costs in the Budget. NSF will use the Justification of Costs by WBS to perform cost analysis in accordance with NSF's Large Facilities Manual (LFM). The current version of the LFM, NSF 15-089, is undergoing final revision. A draft version of Section 4.2, "Cost Estimating and Analysis," will be provided in the Resource Library for use in developing and justifying the proposed costs by WBS. The Justification of Costs by WBS should be submitted under Special Information and Supplementary Documents.

Proposing organizations other than the incumbent must provide a separate budget for a period of up to six months preceding the new award. This information must be provided as part of the required Transition Plan (see Section V.A, item 9.c). The Transition Budget must be presented in the same style, with all applicable budget line items, as the annual Budget of the main proposal. NSF will evaluate the proposed transition costs for reasonableness and allowability. Any transition costs would be awarded as a supplement, and should not be included in or deducted from the first year Budget. The Transition Budget and justification must be submitted under Special Information and Supplementary Documents.

The transition budget should not include non-renewal costs of the incumbent. If a new awardee is selected to manage and operate NCAR, the incumbent will cooperate with the successor to the extent necessary to facilitate uninterrupted support for NCAR during the transition period and will provide transfer of legal rights to relevant property and equipment. If a new operator is selected, the incumbent may submit to NSF costs related to the non-renewal, and these costs will be considered separately.

C. Due Dates

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

August 07, 2017

D. FastLane/Grants.gov Requirements

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. 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. 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

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: http://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 *Investing in Science, Engineering, and Education for the Nation's Future: NSF Strategic Plan for 2014-2018*. 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

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 Review Considerations:

Reviewers will be asked to evaluate the proposed plans to manage and operate NCAR, keeping in mind NCAR's mission and NSF's core expectations for NCAR and its manager. They will consider:

- Strengths and weaknesses of the proposed management approach;
- Strengths and weaknesses of the proposed plans for planning, budgets, human resources and infrastructure maintenance;
- Opportunities and potential benefits that the proposed approach presents for NCAR;
- Any risks to the future success of NCAR in the proposing organization's approach and the degree to which risks are addressed;
- Plans for evaluating and improving NCAR's performance;
- Cost reasonableness and cost efficiency of the proposed approach.

In the process of formulating an overall assessment of the viability of the proposer's management and operations plan for NCAR, reviewers will consider each of the areas below.

1. Ensuring NCAR's excellence as a national center

Reviewers will assess:

- whether the proposing organization has presented a compelling strategic vision for sustaining NCAR's core mission to understand the behavior of the atmosphere and related Earth and geospace systems; to support, enhance, and extend the capabilities of the university community and the broader scientific community, nationally and internationally; to foster the transfer of knowledge and technology for the betterment of life on Earth.
- whether the proposer has demonstrated a clear understanding of the role of the managing organization in relation to NCAR, NSF and NCAR's multiple stakeholders
- the degree to which the proposer has demonstrated that NCAR's plans and programs will be informed by, and responsive to, the emerging needs of NCAR's stakeholders in the atmospheric and broader science communities.
- how the proposer will ensure clear lines of communication with NCAR's many stakeholders and how the proposer will ensure that NCAR's stakeholders through the atmospheric and broader sciences research community receive fair and equitable access to NCAR's facilities and programs.
- whether the proposal presents a compelling long-term strategic vision for NCAR's evolving role in tackling the most pressing societal and research questions with a unified approach that integrates a variety of Earth Systems across a range of spatial and temporal scales.
- the plans presented for developing clear goals for NCAR, supported by appropriate strategic, program and evaluation plans.
- the information provided on the proposer's past experience and performance in managing a facility that serves a large scientific community.

2. Education, Outreach and Promotion of Diversity

Reviewers will assess:

- the extent and quality of the proposed education and outreach programs, their potential for success, and the likely resulting impacts on identified target audiences.
- whether the proposal includes appropriate evaluation plans for these activities.
- the potential for these activities to have a demonstrable impact in the atmospheric, geospace and related research communities.
- the organization's plan for achieving a diverse workforce among both its staff and the broader atmospheric and geospace communities.

3. Business and Financial Management

Reviewers will assess:

- the quality and adequacy of the proposed methods, systems and processes for managing the budget of a complex organization.
- the proposer's organizational structure and methods for assuring accountability.
- whether the proposal describes appropriate mechanisms for identifying and mitigating financial and other business risks.
- whether the proposer's business operations are supported by robust and well-integrated information systems.
- the correspondence between the staffing plan and the available funding.

4. Staffing and Personnel Management

Reviewers will assess:

- whether the proposer presents compelling plans for attracting, retaining and developing a high quality and diverse scientific, technical, administrative and managerial staff at NCAR.
- the adequacy and appropriateness of the organization's named personnel and proposed labor categories for fulfilling the NCAR mission.

5. Management and Stewardship of Physical Infrastructure

Reviewers will assess:

- plans to manage and maintain NCAR's physical infrastructure, including buildings and observational and computational facilities.
- evidence of assessing and planning for future maintenance needs, risk management and lifecycle analysis.

6. Partnerships

Reviewers will consider:

- the suitability, credibility and risks of proposed partnerships with the university community, the private or commercial sector, government agencies and international partners and their added value to NCAR and to NSF-supported science, education and outreach.
- whether the planned partnerships extend equitably throughout the university community.
- plans for strategic participation in technology transfer and other activities that benefit society.

7. Transition Plan

The Transition Plan will be evaluated to assess the proposing organization's ability to assume full responsibility for the management and operation of NCAR upon completion of the transition period without degradation of high-quality services, research efforts and facilities.

Reverse Site Visits

Proposals will be reviewed against the evaluation criteria set out in Section VI of this solicitation. Based on the findings of the proposal reviews, proposing teams may be invited to attend reverse site visits, conducted either in person or via videoconference. The site visit team will consider the proposal evaluation and any outstanding issues that were raised during the review process. Further details of the format and requirements for reverse site visits will be provided to those teams invited to participate, if any.

Budget and Financial Review

In addition, NSF will assess the organization's budgetary and financial information as part of the review and as outlined under Section V.B of this solicitation. The organization will be assessed for the adequacy of its internal accounting and operational controls (including human resources, property control and procurement systems), potential for attracting qualified employees, and the adequacy of its financial resources for managing NCAR. The proposed costs, as well as fee (if any), will be evaluated by NSF for reasonableness and allowability and for their potential impact on funding available for science and related activities.

B. Review and Selection Process

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

Full proposals will be subjected to panel review. A summary rating and accompanying narrative will be completed and submitted by each reviewer. To further clarify the panel's understanding of proposal(s), the evaluation may include one or more site visits. NSF staff's evaluation of the financial and business systems will be used to help inform the Program Officer's review. After consideration of the scientific, technical and business reviews, the NSF Program Officer will determine whether a proposal should be recommended to the cognizant Division Director for award. Upon approval by the Directorate, the NSF program recommendation will be submitted to the Director's Review Board and, subsequently, the National Science Board for review and approval.

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 proposal recommended for funding will be forwarded to the Division of Acquisition and Cooperative Support 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

A. Notification of the Award

Notification of the award is made to the submitting organization by a Grants and Agreements Officer in the Division of Acquisition and Cooperative Support. 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

The award associated with this solicitation will be a Cooperative Agreement, not a standard grant or a contract. Individual cooperative support agreements will be issued under the terms and conditions of the overall agreement.

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; and (4) 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 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 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=papp.

Special Award Conditions:

Any special requirements not stated herein will be negotiated at time of award.

Programmatic Terms and Conditions:

The operation of NCAR must be conducted in the public interest with objectivity and independence, free from organizational conflicts of interest, and with full disclosure of NCAR's affairs to NSF. NSF will be responsible for award oversight, including technical, programmatic, and financial and administrative performance.

Cooperative Agreement Administration

The Cooperative Agreement awarded as a result of this competition will be administered by the AGS NCAR and Facilities Section. The following measures will be employed in providing oversight for the cooperative agreement:

- review of annual reports, program plans and performance metrics;
- reviews of science activities and management performance approximately 2.5 years after the award is made;
- site visits annually, or as necessary;
- for each cooperative support agreement issued to the awardee, review of annual reports, project plan and final report;
- a Business Systems Review at least once during the award and at least once during any subsequent renewal;
- accounting systems and incurred cost and/or internal controls audits as deemed necessary by the Government;
- review of annual financial expenditures submitted through external Data Collection Tool.

Financial and Administrative Terms and Conditions:

Policy considerations, procedures and requirements are described in the NSF Cooperative Agreement Financial and Administrative Terms and Conditions (https://www.nsf.gov/pubs/policydocs/cafate/cafate_117.pdf) and the Cooperative Agreement Supplemental Financial/Administrative Terms and Conditions for Managers of Federally Funded Research and Development Centers (FFRDCs) (https://www.nsf.gov/pubs/policydocs/cafate/cafate_ffrdc117.pdf).

Costs to be reimbursed in accordance with 2 CFR 220 - Cost Principles for Educational Institutions, 2 CFR 230 - Cost Principles for Nonprofit Organizations, or Federal Acquisition Regulation (FAR) Part 31, as applicable.

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. Program-specific terms and conditions will be negotiated at time of award.

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 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=papp.

Awardee Data Requirements

The awardee must keep records of all proposals involving the use of NCAR staff, facilities or other resources, and of any subsequent awards, and these records must be made available to NSF on request. Other data requirements may be specified prior to and during the award, as necessary.

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:

- Sarah L. Ruth, Section Head, AGS, telephone: (703) 292-7594, email: sruth@nsf.gov
- Linnea M. Avallone, Program Director, NCAR and Facilities Section, telephone: (703) 292-8521, email: lavallon@nsf.gov
- Kristin Spencer, Grants and Agreements Officer, telephone: (703) 292-4585, fax: (703) 292-9140, email: kspencer@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. Modifications, if any, to this solicitation, as well as other related program information as it becomes available, will be posted to the NSF website. In addition, MyNSF (formerly the Custom News Service) 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 Regional 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. MyNSF also is available on NSF's Website at <http://www.nsf.gov/mynsf/>.

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>.

Sources of additional information:

National Science Foundation, Atmospheric Sciences:

<https://www.nsf.gov/div/index.jsp?div=ags>

National Science Foundation, Geosciences:

<http://www.nsf.gov/dir/index.jsp?org=GEO>

National Center for Atmospheric Research:

<http://www.ncar.ucar.edu/>

NCAR Strategic Plan:

https://ncar.ucar.edu/sites/default/files/NCAR_Strat_Plan_Final_102014.pdf

NCAR Annual Report:

<https://nar.ucar.edu/2016/ncar/2016-ncar-annual-report>

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 (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 <http://www.nsf.gov>

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center): (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090

- **To Order Publications or Forms:**

Send an e-mail to: nspubs@nsf.gov

or telephone: (703) 292-7827

- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

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