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National Aeronautics and Space Administration
Office of Education

FY 2011 NASA Cooperative Agreement Notice (CAN)

Experimental Program to Stimulate Competitive Research (EPSCoR)

Research Announcement

Announcement No. NNH11ZHA003C
Catalog of Federal Domestic Assistance (CFDA) Number: 43.008

Release Date:	**17 December 2010**
Notice of Intent Due:	**28 January 2011**
Proposals Due:	**11 March 2011**

NASA Headquarters
Office of Education
Washington, DC 20546-0001

Summary of Key Information

Cooperative Agreement Notice (CAN) NNH11ZHA003C

Experimental Program to Stimulate Competitive Research (EPSCoR)

The National Aeronautics and Space Administration (NASA) Office of Education, in cooperation with NASA's four Mission Directorates—Aeronautics Research, Exploration Systems, Science, and Space Operations—, the Office of the Chief Technologist (OCT), and NASA's ten Centers, solicits proposals for the NASA Experimental Program to Stimulate Competitive Research (EPSCoR). Each funded NASA EPSCoR proposal is expected to establish research activities that will make significant contributions to the strategic research and technology development priorities of one or more of the Mission Directorates or the OCT and contribute to the overall research infrastructure, science and technology capabilities, higher education, and economic development of the jurisdiction. Proposals are due on 11 March 2011.

Solicitation Availability

This announcement is accessible through the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES) and through Grants.gov.

To access through NSPIRES, go to http://nspires.nasaprs.com and click on Solicitations.

To access through Grants.gov, go to http://www.grants.gov/search/agency.do and select the link for NASA.

Selecting Official

The selecting official for this CAN is the Associate Administrator for Education at NASA Headquarters.

Funds Availability

The Government's obligation to make an award is contingent upon the availability of appropriated funds from which payment can be made.

Number and Size of Awards

It is anticipated that 6-10 awards of up to $750,000 each to be expended over a three-year period of performance may be made under this Notice pursuant to the authority of the *NASA Grant and Cooperative Agreement Handbook* (http://prod.nais.nasa.gov/pub/pub_library/grcover.htm), Section 1260.12(d).

NASA Safety Policy

Safety is the freedom from those conditions that can cause death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment. NASA's safety priority is to protect: (1) the public, (2) astronauts and pilots, (3) the NASA workforce (including employees working under NASA award instruments), and (4) high-value equipment and property.

Proposal Submission

All information needed to respond to this solicitation is contained in this announcement and in the companion document entitled *Guidebook for Proposers Responding to a NASA Research Announcement (NRA) or Cooperative Agreement Notice (CAN) January 2010 Edition* (hereafter referred to as the NASA Guidebook for Proposers). The PDF version is available at:

http://www.hq.nasa.gov/office/procurement/nraguidebook/proposer2010.pdf

Within the Agency, NASA Research Announcements (NRAs) and CANs are the types of solicitations used to solicit proposals for grants and cooperative agreements. The main difference between an NRA and a CAN is that a CAN is used when the decision has been made in advance that cooperative agreements, rather than grants, will be awarded for a given research opportunity. The procedures and processes to be followed by proposers when responding to CANs and NRAs are the same.

Inquiries

Technical and scientific questions about programs in this CAN may be directed to:

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Inquiries regarding the submission of proposal materials may be addressed to:

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I. Description of Opportunity

A. Technical Description

NASA's Office of Education, in cooperation with NASA's four Mission Directorates (Aeronautics Research, Exploration Systems, Science, and Space Operations), the Office of the Chief Technologist (OCT), and NASA's ten Centers, solicits proposals for the NASA Experimental Program to Stimulate Competitive Research (EPSCoR). Each funded NASA EPSCoR proposal is expected to establish research activities that will make significant contributions to the strategic research and technology development priorities of one or more of the Mission Directorates or OCT and contribute to the overall research infrastructure, science and technology capabilities, higher education, and economic development of the jurisdiction.

The program parameters are:

- NASA EPSCoR Jurisdictions responding to this Cooperative Agreement Notice (CAN) may submit up to two proposals.
- The maximum funding request per proposal is $750,000. This amount is to be expended over a three-year period.
- All NASA EPSCoR monies must be cost-shared at a level of at least 50% with non-federal monies. In-kind cost-sharing is allowable.

This CAN is available in electronic form through the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES) and through Grants.gov.

To access the CAN through NSPIRES, go to http://nspires.nasaprs.com and click on Solicitations.

To access the CAN through Grants.gov, go to http://www.grants.gov/search/agency.do and select the link for NASA.

B. EPSCoR Background

Public Law 102-58, passed in 1992, authorized NASA to initiate NASA EPSCoR to strengthen the research capability of jurisdictions that have not in the past participated equably in competitive aerospace research activities. The goal of NASA EPSCoR is to provide seed funding that will enable jurisdictions to develop an academic research enterprise directed toward long-term, self-sustaining, nationally-competitive capabilities in aerospace and aerospace-related research. This capability will, in turn, contribute to the jurisdiction's economic viability and expand the nation's base for aerospace research and development. Since its inception, NASA EPSCoR has been closely linked to the National Space Grant College and Fellowship Program (Space Grant).

Based on the availability of funding, NASA will continue to help jurisdictions achieve these goals through NASA EPSCoR. Funded jurisdictions will be selected through a merit-based, peer-review competition.

The following are the specific objectives of NASA EPSCoR:

- Contribute to and promote the development of research capability in NASA EPSCoR jurisdictions in areas of strategic importance to the NASA mission;
- Improve the capabilities of the NASA EPSCoR jurisdictions to gain support from sources outside the NASA EPSCoR program;

- Develop partnerships between NASA research assets, academic institutions, and industry;
- Contribute to the overall research infrastructure, science and technology capabilities, higher education, and economic development of the jurisdiction; and
- Work in close coordination with the Space Grant consortium in the jurisdiction to improve the environment for science, technology, engineering and mathematics (STEM) education.

C. EPSCoR Eligibility and Proposal Acceptance

While proposals can be accepted only from institutions for which the NASA EPSCoR Directors are currently serving, all institutions of higher education within the jurisdiction should be given the opportunity and must be made aware of the FY2011 NASA EPSCoR CAN. The National Science Foundation (NSF) determines overall jurisdiction eligibility for NASA EPSCoR. Details regarding general eligibility are available at http://www.nsf.gov/od/oia/programs/epscor/eligible.jsp.

The following jurisdictions are eligible to propose to this NASA EPSCoR solicitation: Alabama, Alaska, Arkansas, Delaware, Hawaii, Idaho, Iowa, Kansas, Kentucky, Louisiana, Maine, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Puerto Rico, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, Vermont, West Virginia, and Wyoming.

Jurisdictions responding to this CAN may submit up to two proposals. The number of active NASA EPSCoR Research Awards in a given jurisdiction will be a consideration during the selection process.

The estimated funding and number of proposals anticipated to be funded, as shown in this CAN under the section entitled Summary of Key Information, are subject to the availability of appropriated funds, as well as the submission of a sufficient number of proposals of adequate merit.

D. Period of Performance

NASA EPSCoR awards will support a three-year cooperative agreement. It is anticipated that this period of performance will enable the researchers to achieve the performance task objectives stated in the original proposal and/or any amendments submitted with annual progress reports and accepted by the NASA EPSCoR project office.

E. Connections between the NASA's EPSCoR and National Space Grant College and Fellowship Programs

The goals of NASA EPSCoR closely parallel those of the NSF's EPSCoR program. Cooperative Agreements will be awarded to the institution of the NASA EPSCoR/Space Grant Director. The NASA EPSCoR Director must therefore serve as the Principal Investigator (PI) for and manage the jurisdiction's NASA EPSCoR project (see Section III. Program Management, Paragraph B. Jurisdiction Level for a discussion of management responsibilities). Individuals and individual institutions participating in a jurisdiction's NASA EPSCoR project need not be members of the jurisdiction's Space Grant Consortium.

F. Notice of Intent

Institutions planning to prepare a proposal package for NASA EPSCoR are requested to submit a Notice of Intent (NOI) to propose. To be useful to NASA EPSCoR Management, NOIs must be submitted by the jurisdiction NASA EPSCoR Director through NSPIRES

(http://nspires.nasaprs.com) by 11:59 p.m. Eastern Time, 28 January 2011. NOIs must be submitted via NSPIRES regardless of whether the proposal will be submitted via NSPIRES or Grants.Gov. NASA will use the information provided in the NOI to assess research interests in NASA EPSCoR and to determine the expertise required of merit reviewers. See Appendix E, Section 3 of this announcement for additional details regarding NOI's.

II. Project Overview and Guidelines

A. General

Each NASA EPSCoR project must perform scientific and/or technical research in areas that support the strategic research and technology development priorities of one or more of NASA's four Mission Directorates and/or the OCT. Proposals should emphasize developing capabilities to compete for funds from NASA sources outside of EPSCoR and from other non-NASA sources. The projects should move increasingly towards gaining support from sources outside NASA EPSCoR by aggressively pursuing additional funding opportunities offered by NASA, industry, other federal agencies, and elsewhere.

B. Funding and Cost-Sharing

The maximum funding that can be requested from NASA by a jurisdiction is $750,000 per proposal. This amount is to be expended over three years in accordance with the budget details and budget narrative in the approved proposal.

Cost-sharing is required at a level of at least 50% of the requested NASA funds. Although the method of cost-sharing is flexible, NASA encourages the EPSCoR jurisdiction committees to consider methods that would add value to the jurisdiction's existing research capabilities. All contributions, including cash or in-kind, shall meet the criteria contained in the *NASA Grant and Cooperative Agreement Handbook*, 14 Code of Federal Regulations (CFR) §1260.123.

C. Restrictions

In addition to the funding guidelines and requirements in the *NASA Guidebook for Proposers* and the *Grant and Cooperative Agreement Handbook*, the following restrictions govern the use of the federally-provided and cost-share NASA EPSCoR funds and are applicable to this CAN:

- Funds may not be used to fund research carried out by non-U.S. institutions. U.S. research award recipients may, however, directly purchase supplies and/or services that do not constitute research from non-U.S. sources. However, subject to export control restrictions, a foreign national may receive remuneration through a NASA award for the conduct of research while employed either full or part time by a U.S. institution. For additional guidance on foreign participation, see Section 1.6 of the *NASA Guidebook for Proposers* and NASA FAR Supplement (NFS) Part 1835.016-70.
- Travel, including foreign travel, is allowed for the meaningful completion of the proposed investigation, as well as for reporting results at appropriate professional meetings. Foreign travel to meetings and conferences in support of the jurisdiction's NASA EPSCoR research project is an acceptable use of NASA EPSCoR funds, with an upper limit of $3,000 per trip for up to two separate years of a jurisdiction's proposal (i.e., the maximum amount the jurisdiction can request for foreign travel is $3,000 total in any one year and a limit of $6,000 total for each research proposal). EPSCoR support should be acknowledged by EPSCoR research project number in written reports and publications.

Note that domestic travel does not have a limit. Domestic travel should be appropriate and reasonable to conduct the proposed research.

- The construction of facilities is not an allowable cost in any of the programs solicited in this CAN. For further information on allowable costs, refer to the cost principles cited in the *Grant and Cooperative Agreement Handbook*, 14 CFR §1260.127.
- NASA EPSCoR funding cannot be used to purchase general purpose equipment, e.g. desktop workstations, office furnishings, reproduction and printing equipment, etc. as a direct charge. Special purpose equipment purchases (i.e., equipment that is used only for research, scientific, and technical activities directly related to the proposed research activities) are allowed and can be reflected as a direct charge as per NASA *Grants and Cooperative Agreement Handbook*, 14 CFR § 1260.27.

D. NASA Research Areas of Interest

NASA EPSCoR research priorities are defined by the Mission Directorates (Aeronautics Research, Exploration Systems, Science, and Space Operations) and the Office of the Chief Technologist. Each Mission Directorate and the Office of the Chief Technologist covers a major area of the Agency's research and technology development efforts.

Information about current NASA research solicitations can be found on NSPIRES at http://nspires.nasaprs.com (select "Solicitations" and then "Open Solicitations").

Research priorities for each of the Mission Directorates and the Office of the Chief Technologist are summarized below and can be found at the following locations:

Aeronautics Research Mission Directorate (ARMD)

Researchers responding to the ARMD should propose research that is aligned with one or more of the ARMD programs. Proposers are directed to the following:

- ARMD Programs: http://www.aeronautics.nasa.gov/programs.htm
- Research Opportunities in Aeronautics (ROA) http://nspires.nasaprs.com (select "Solicitations" and then "Open Solicitations")

Exploration Systems Mission Directorate (ESMD)

General priorities of ESMD can be found at http://www.nasa.gov/directorates/esmd.

- **Human Research**
  The Human Research Program (HRP) investigates and mitigates the highest risks to astronaut health and performance in exploration missions. The goal of the HRP is to provide human health and performance countermeasures, knowledge, technologies, and tools to enable safe, reliable, and productive human space exploration, and to ensure safe and productive human spaceflight. The scope of these goals includes both the successful completion of exploration missions and the preservation of astronaut health over the life of the astronaut.

  Two foundational documents of the HRP are the Program Requirements Document (PRD) and the Integrated Research Plan (IRP). The PRD lists the crew health and performance risks that the HRP must understand and mitigate. The IRP describes the plan to understand and reduce the risks. The PRD (http://humanresearch.jsc.nasa.gov/elements/smo/nra.asp) describes the high-level requirements that the Program must meet.

The IRP (http://humanresearch.jsc.nasa.gov/elements/smo/nra.asp) describes the Program's research activities that are intended to address the needs of human space exploration and serve HRP customers. The IRP illustrates the program's research plan through the timescale of early lunar missions of extended duration. The Human Research Roadmap (http://humanresearchroadmap.nasa.gov) is a web-based version of the IRP document that allows users to search HRP risks, gaps, and tasks.

This EPSCoR solicitation solicits proposals in the following three areas:

1. Team Autonomy in the context of Long duration Space missions;
2. Maintaining optimal performance by reducing the risk associated with Reduced Muscle Mass, Strength and Endurance; and
3. Research on Individual Radiation Sensitivity

More details and background information on Topics 1 and 2 can be found be referring to the research solicitation in this area:
http://nspires.nasaprs.com/external/viewrepositorydocument/cmdocumentid=241609/NNJ10ZSA003N%20NRA%208-5-2010.pdf

For more background information and details on Topic 3, please refer to the solicitation: https://utworks.tennessee.edu/research/pdt/Announce/NNJ10ZSA001N.pdf.

- **Engineering Research**
  - Spacecraft: Guidance, navigation and control; thermal; electrical; structures; software; avionics; displays; high speed re-entry; modeling; power systems; interoperability/commonality; advanced spacecraft materials; crew/vehicle health monitoring; life support.
  - Propulsion: Propulsion methods that will utilize materials found on the moon or Mars, "green" propellants, on-orbit propellant storage, motors, testing, fuels, manufacturing, soft landing, throttle-able propellants, high performance, and descent.
  - Robotic Systems for Precursor Near Earth Asteroid (NEA) Missions: Navigation and proximity operations systems; hazard detection; techniques for interacting and anchoring with Near Earth Asteroids; methods of remote and interactive characterization of Near Earth Asteroid (NEA) environments, composition and structural properties; robotics (specifically environmental scouting prior to human arrival and later to assist astronauts with NEA exploration); environmental analysis; radiation protection; spacecraft autonomy, enhanced methods of NEA characterization from earth-based observation.
  - Robotic Systems for Lunar Precursor Missions: Precision landing and hazard avoidance hardware and software; high-bandwidth communication; in-situ resource utilization (ISRU) and prospecting; navigation systems; robotics (specifically environmental scouting prior to human arrival, and to assist astronaut with surface exploration); environmental analysis, radiation protection.
  - Data and Visualization Systems for Exploration: Area focus on turning precursor mission data into meaningful engineering knowledge for system design and mission planning of lunar surface and NEAs. Visualization and data display; interactive data manipulation and sharing; mapping and data layering including coordinate transformations for irregular shaped NEAs; modeling of lighting and thermal

environments; simulation of environmental interactions including proximity operations in irregular micro-G gravity fields and physical stability of weakly bound NEAs.

Science Mission Directorate (SMD)

Detailed information on SMD research priorities is available at the following URLs:

- NASA Science Plan 2010: http://science.hq.nasa.gov/strategy/ and http://science.nasa.gov/media/medialibrary/2010/08/10/2010SciencePlan.pdf.
- NASA's Plan for a Climate-Centric Architecture for Earth Observations and Applications from Space: http://science.nasa.gov/media/medialibrary/2010/07/01/Climate_Architecture_Final.pdf.
- Research Opportunities in Space and Earth Science (ROSES): http://nspires.nasaprs.com/external/. Select "Solicitations", "Open Solicitations", and then "Research Opportunities in Space and Earth Sciences (ROSES) – 2010".
- In addition, proposers can visit the following URL: http://nasascience.nasa.gov/big-questions which summarizes the research questions across all four SMD divisions and links to their respective 2007-2016 science strategy.

Space Operations Mission Directorate (SOMD)

The primary research and technology development areas in SOMD support launch vehicles, space communications, and the International Space Station. Examples of research and technology development areas (and the associated lead NASA Center) with great potential include:

- Processing and Operations
  - Crew Health and Safety Including Medical Operations (Johnson Space Center (JSC))
  - In-helmet Speech Audio Systems and Technologies (Glenn Research Center (GRC))
  - Vehicle Integration and Ground Processing (Kennedy Space Center (KSC))
  - Mission Operations (Ames Research Center (ARC))
  - Portable Life Support Systems (JSC)
  - Pressure Garments and Gloves (JSC)
  - Air Revitalization Technologies (ARC)
  - In-Space Waste Processing Technologies (JSC)
  - Cryogenic Fluids Management Systems (GRC)
- Space Communications and Navigation
  - Coding, Modulation, and Compression (Goddard Spaceflight Center (GSFC))
  - Precision Spacecraft and Lunar/Planetary Surface Navigation and Tracking (GSFC)
  - Communication for Space-Based Range (GSFC)
  - Antenna Technology (Glenn Research Center (GRC))
  - Reconfigurable/Reprogrammable Communication Systems (GRC)
  - Miniaturized Digital EVA Radio (Johnson Space Center (JSC))
  - Transformational Communications Technology (GRC)

- Long Range Optical Telecommunications (Jet Propulsion Laboratory (JPL))
- Long Range Space RF Telecommunications (JPL)
- Surface Networks and Orbit Access Links (GRC)
- Software for Space Communications Infrastructure Operations (JPL)
- TDRS transponders for launch vehicle applications that support space communication and launch services (GRC)

- Space Transportation
  - Optical Tracking and Image Analysis (KSC)
  - Space Transportation Propulsion System and Test Facility Requirements and Instrumentation (Stennis Space Center (SSC)
  - Automated Collection and Transfer of Launch Range Surveillance/Intrusion Data (KSC)
  - Technology tools to assess secondary payload capability with launch vehicles (KSC)
  - Spacecraft Charging/Plasma Interactions (Environment definition & arcing mitigation) (Marshall Space Flight Center (MSFC))

Office of the Chief Technologist (OCT)

NASA's Chief Technologist serves as the NASA Administrator's principal advisor and advocate on matters concerning agency-wide technology policy and programs. The Office of the Chief Technologist (OCT) is responsible for direct management of NASA's Space Technology programs and for coordination and tracking of all technology investments across the agency. Space Technology is a new budget line in the President's FY11Budget Request for NASA. Space Technology consists of 10 technology development and innovation programs that are broadly applicable to the Agency's aeronautics, science and exploration enterprises (http://www.nasa.gov/pdf/485335main_OCT_Overview_slides_TAGGED.pdf). These 10 programs are managed by the OCT through the formation of 3 Divisions:

- The Early-Stage Innovation Division
  - NASA Innovative Advanced Concepts (NIAC)
  - Space Technology Research Grants
  - Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR)
  - Centennial Challenges
  - Center Innovation Fund
- Game Changing Technology Division
  - Innovative ideas enabling new capabilities or radically altering our current approaches to space systems
  - Franklin Small Satellite Subsystem Technology Program
- Crosscutting Capability Demonstrations Division
  - Technology Demonstration Missions Program
  - Edison Small Satellite Missions Program
  - Flight Opportunities Program

Researchers responding to the Office of the Chief Technologist should propose research that is aligned with one or more of the OCT programs. Proposers are directed to the following URL: http://www.nasa.gov/offices/oct/home/index.html.

E. Research Student Support

The use of NASA EPSCoR funds for support of research students is allowable, and must be detailed in the Budget Justification and described in the narrative and evaluation sections of the proposal (see Section VIII. Proposal Evaluation Criteria and Selection Process).

F. Partnerships and Interactions

All institutions of higher education within the jurisdiction should be given the opportunity and must be made aware of the FY2011 NASA EPSCoR CAN. All proposals must be submitted through the jurisdiction's NASA EPSCoR office. Jurisdictions are strongly encouraged to submit proposals that demonstrate partnerships or cooperative arrangements among academia, government agencies, business and industry, private research foundations, jurisdiction agencies, and local agencies. Partnerships with minority-serving institutions are strongly encouraged. Inclusion of faculty and students from underrepresented/underserved groups is also strongly encouraged.

NASA-funded, in-kind services provided by NASA Centers, Mission Directorates, and/or the Office of the Chief Technologist should be identified as NASA responsibilities in the proposals.

Statements of commitment and letters of support are important components of the proposal. NASA does not, however, solicit or evaluate letters of endorsement. Review the *NASA Guidebook for Proposers* for distinctions among statements of commitment, letters of support, and letters of endorsement.

III. Program Management

A. NASA EPSCoR Program and Project Levels

The NASA EPSCoR Program is administered by the Office of Education at NASA Headquarters. NASA EPSCoR Program Management is closely coordinated with NASA Headquarters program offices (research and educational) and the Centers.

NASA EPSCoR Project Management resides at Kennedy Space Center (KSC). NASA EPSCoR Project Management has the overall responsibility for oversight, evaluation, and reporting. Technical and scientific questions about programs in this solicitation may be directed to the NASA EPSCoR Project Manager.

The primary points of contact at the Centers are listed in Appendix D.

B. Jurisdiction Level

The jurisdiction's NASA EPSCoR Director, who is also the Space Grant Consortium Director, will serve as the managing Principal Investigator (PI) on the award, providing leadership and direction for the team from an oversight role. The director is responsible for oversight and overall management of the project to assure compliance with NASA EPSCoR. The principal investigator in charge of the scientific direction of the proposed work should be listed as the Co-I/Science-PI. If the institution of the Co-I/Science-PI is different from the submitting institution, awards may be directed to the institution of the Co-I/Science-PI through a subcontract.

The submitting and awardee institution will be that of the jurisdiction's NASA EPSCoR Director. The director is responsible for ensuring the timely reporting by the team of progress and accomplishments of its work. The Government's obligation to continue any award is based on satisfactory progress as detailed in the recipient's required annual progress reports. The research proposal can include a reasonable level of funding for management, administrative, and oversight function of the jurisdiction's NASA EPSCoR director. This amount, if required, must be included in the $750,000 cap.

The jurisdiction's NASA EPSCoR director should provide guidance and updates to the Co-Is regarding NASA policy and direction from both an Agency technical perspective and from a NASA EPSCoR programmatic aspect. The director is responsible for maintaining an awareness of NASA research and technology development priorities and jurisdiction research priorities. As the primary point of contact for NASA regarding EPSCoR in the jurisdiction, it is expected that the director maintains connections with the jurisdiction's EPSCoR committee and identifies and develops opportunities for collaboration within the jurisdiction with existing EPSCoR and EPSCoR-like programs from other federal agencies. It is also expected that the director will consult with appropriate jurisdiction organizations such as the economic development commission and the jurisdiction's EPSCoR Committee in attending to jurisdiction research priorities.

Further, Jurisdiction directors are expected to closely coordinate their EPSCoR and Space Grant programs.

C. Schedule

The schedule for the review and selection of proposals for this announcement is as follows:

Notices of Intent Due: 28 January 2011
Proposals Due: 11 March 2011

D. Cancellation of Program Announcement

NASA Office of Education reserves the right to make no awards under this CAN and to cancel this CAN. NASA assumes no liability (including bid and proposal costs in case of cancellation) for canceling the CAN or for anyone's failure to receive actual notice of cancellation.

E. Inquiries

Technical and scientific questions about this CAN may be directed to:

Luis C. Rabelo
Project Manager, NASA EPSCoR
Office of Education
NASA Kennedy Space Center
HQ EX-E
Kennedy Space Center, FL 32899-0001
E-mail: Luis.C.Rabelo@nasa.gov
Telephone: (321) 867-5283

Inquiries regarding the submission of proposal materials may be addressed to:

Althia Harris
NASA Research and Education Support Services (NRESS)
2345 Crystal Drive, Suite 500
Arlington, VA 22202-4816

E-mail: aharris@nasaprs.com
Telephone: (202) 479-9030 x310
Fax: (202) 479-0511

IV. Proposal Review and Selection

A. Evaluation Criteria

Evaluation by peers of the proposed personnel will be used to assess each proposal's overall merit. The evaluation criteria are: Intrinsic Merit, NASA Alignment and Partnerships, Management and Evaluation, and Budget Justification: Narrative and Details. For descriptions of these, see Section VIII, Proposal Evaluation Criteria and Selection Process.

B. Review and Selection Processes

Review of proposals submitted to this CAN will be consistent with the general policies and provisions given in the *NASA Guidebook for Proposers*, Appendix C. The evaluation criteria described in this CAN under Section VIII, Proposal Evaluation Criteria and Selection Process, supersede (take precedence over) the evaluation criteria described in Section C.2 of the *NASA Guidebook for Proposers*. However, selection procedures will be consistent with the provisions of the *NASA Guidebook for Proposers*, Section C.5. The selecting official for this CAN is the Associate Administrator for Education at NASA Headquarters.

C. Selection Announcement

NASA's stated goal is to announce selections as soon as possible. However, NASA does not usually announce new selections until the funds needed for those awards are approved through the Federal budget process. Therefore, a delay in NASA's budget process may result in a delay of the selection date(s). After 180 days past the proposal's submitted date, proposers may contact the NASA EPSCoR Project Manager for a status.

Notification of both the selected, as well as the non-selected proposals, will be consistent with the policy contained in the *NASA Guidebook for Proposers*, Section C.5.3. Proposers not selected will be notified by electronic mail and offered a debriefing consistent with the policy in the *NASA Guidebook for Proposers*, Section C.6.

V. Award Administration Information

A. Notice of Award

For selected proposals, a NASA Grants Officer will promptly contact the business office of the proposer's institution. The NASA Grants Officer is the only official authorized to obligate the Government. For a grant or cooperative agreement, any costs that the proposer incurs in anticipation of an award will be subject to the *NASA Grant and Cooperative Agreement Handbook*, 14 CFR § 1260.125(e).

B. Administrative and National Policy Requirements

This solicitation does not invoke any special administrative or national policy requirements, nor do the resulting awards involve any special terms and conditions that differ from NASA's general terms and conditions as provided in the *Grant and Cooperative Agreement Handbook* and *the NASA Guidebook for Proposers*.

C. Award Reporting Requirements

The reporting requirements for awards made through this CAN will be consistent with the *Grant and Cooperative Agreement Handbook*, Exhibit G. Specific reporting requirements are described below.

Annual Progress and Final Reports

Every year of performance, recipients are required to submit an annual progress report at least 60 days prior to the anniversary date of the start of the project. The progress report will document project activities over the period of performance of the grant, and overall progress towards project objectives. NASA EPSCoR staff and a NASA Technical Monitor will review these progress reports. Research projects will also be required to submit annual performance data, project information, and Program Assessment Rating Tool (PART) data through the new NASA Office of Education Performance Measurement (OEPM) system.

NASA will provide research projects with specific guidelines for the submission of OEPM data and the annual progress report. Every effort will be made to streamline the reporting burden for these two requirements, while complying with federal and education reporting requirements. NASA will provide specific formats and data entry forms to the respective jurisdictions. At a minimum, progress reports will include grant title and number, and report on the following:

<u>Narrative</u>

- Research accomplishments measured against the proposed goals and objectives.
- Systemic change as evidenced by:
  - improvements in jurisdiction research and development infrastructure;
  - increased financial commitment from the jurisdiction, industry, and participating institutions;
  - response of activities to NASA and jurisdiction priorities;
  - reordered jurisdiction and/or institutional priorities.
- Descriptions of all successful technology transfers to the private sector.
- Extent to which collaborations with jurisdiction agencies, industry, research and academic institutions, and NASA have evolved.
- Discussion of interaction between and cooperation with the jurisdiction's Space Grant consortium.

<u>Quantitative Data</u>

- Research success of individual investigators as measured by:
  - articles submitted to or published in refereed journals;
  - talks, presentations, or abstracts at professional meetings;
  - articles submitted to NASA venues;
  - patents and patent applications;
  - follow-on grant proposals submitted/funded including funding amounts;
- Demographic (ethnicity/race and gender through self identification) information on participants

- faculty – including names and institutions;
- post-doctoral, graduate, and undergraduate students.

In addition to these requirements, the annual report should include a revised schedule and budget of project activities only if there are significant deviations from the original proposal.

Accomplishments toward project goals will be evaluated by reference to indicators such as, but not limited to, the metrics outlined above. NASA may approve no-cost extensions when requested by the recipient in accordance with the *NASA Grant and Cooperative Agreement Handbook*.

Recipients shall submit, within 90 calendar days after the date of completion of the award, an in-depth final report that summarizes the three-year progress and accomplishments of the project. The NASA EPSCoR office will review the annual and final reports for completeness. Failure to provide an annual project report and/or final report will delay or preclude the participation of the respective jurisdiction in other funding opportunities related to NASA EPSCoR.

VI. Updates and Submission Information

A. Announcement of Updates/Amendments to Solicitation

Additional programmatic information for this CAN may develop before the proposal due date. If so, such information will be added as a formal amendment to this CAN as posted at its homepage on http://nspires.nasaprs.com.

Any clarifications or questions and answers regarding this CAN will be posted at its homepage on http://nspires.nasaprs.com.

It is the responsibility of the prospective proposer to regularly check this CAN's homepage for updates.

B. Electronic Submission of Proposal Information

On-time electronic submission via NSPIRES ***(***http://nspires.nasaprs.com***)*** or Grants.gov (http://www.grants.gov) is required for every proposal. While every effort is made to ensure the reliability and accessibility of the web sites and to maintain a help center via e-mail and telephone, difficulty may arise at any point on the internet, including the user's own equipment. Prospective proposers are urged to familiarize themselves with the NSPIRES site and to submit the required proposal materials well in advance of the proposal submission deadline. Difficulty in registering with or using a proposal submission system (either NSPIRES or Grants.gov) is not, in and of itself, a sufficient reason for NASA to consider a proposal that is submitted after the proposal due date (see Appendix E).

Every organization that intends to submit a proposal through Grants.gov must also be registered in Grants.gov, as well as in NSPIRES. Registration for either proposal data system must be performed by an organization's electronic business point-of-contact (EBPOC) in the Central Contractor Registry (CCR).

Proposers can use either NSPIRES (http://nspires.nasaprs.com) or Grants.gov (http://www.grants.gov/) for proposal submission. All proposers, team members, and agency officials must be registered before proposal submission with NSPIRES regardless of the electronic system used to submit proposals.

C. Proposal Submission Date and Time

All proposals in response to this CAN must be submitted electronically via NSPIRES (http://nspires.nasaprs.com) or Grants.gov (http://www.grants.gov/search/agency.do). Hard copies of the proposal will not be accepted. Electronic proposals must be submitted in their entirety by 11:59 p.m., Eastern Standard Time on the proposal due date of 11 March 2011.

Respondents without access to the Web or who experience difficulty using the NSPIRES proposal site (http://nspires.nasaprs.com) may contact the Help Desk at nspires-help@nasaprs.com or call 202-479-9376 between 8:00 a.m. and 6:00 p.m. (EDT), Monday through Friday, except Federal holidays.

Proposals that are late will be handled in accordance with NASA's policy as given in the *NASA Guidebook for Proposers*, Appendix B, Section (g) (also see Sections 3.2 and F.23). Proposals received after the due date may be returned without review. If a late proposal is returned, it is entirely at the proposer's discretion whether or not to resubmit it in response to a subsequent appropriate solicitation.

VII. Proposal Preparation

Required elements of the proposal are described below and must be submitted as one or more PDF documents that are uploaded for proposal submission. Please refer to Appendix E of this announcement for NSPIRES instructions on proposal submission procedures. Section 2.2 of the *NASA Guidebook for Proposers* provides guidelines for style formats.

Proposal Content	Page Guideline
Proposal Cover Pages: The Proposal Cover Pages contain information about the proposal, including the following: ***Proposal Information:*** PI information, proposal title, proposed start and end dates, submitting institution information, certification and authorization ***Team Members:*** Names and contact information ***Project Summary (200-300 words):*** Brief description of the project, objectives, method of approach, and outcomes. ***Budget Figures:*** Include NASA dollar figures for all years of the proposed program in the spaces provided. This section should not include the total budget with cost sharing. The proposal Cover Pages are generated by NSPIRES when a proposal is submitted. **Please Note: The length of the proposal cover page will vary depending on the proposal.**	as needed
Table of Contents	1-2 pages
Project Description: A detailed description of the proposed research plan. Page limit includes all illustrations, tables, and figures, where each "n-page" fold-out counts as n-pages and each side of a sheet containing text or an illustration counts as a page. ***Project Purpose:*** Describe how the proposed research activities will make significant contributions to the strategic research and technology development priorities of one or more of the Mission Directorates or the OCT and contribute to the overall research infrastructure, science and technology capabilities, higher education, and economic development of the jurisdiction. ***Goals and Objectives:*** Clearly state goals and objectives for the proposed effort and provide a rationale for the approach that will be used to achieve them. ***Project Content:*** Clearly describe the proposed effort and how the goals and objectives will be achieved. Please note, when preparing a proposal that involves the use of human subjects, animals, hazardous materials, select agents, and/or recombinant DNA, the proposers will need to address applicable compliance issues. ***Anticipated Results:*** Describe the anticipated results of the proposed effort. ***Partnerships and Interactions:*** Describe any partnerships or cooperative arrangements among academia, government agencies, business and industry, private research foundations, jurisdiction agencies, and local agencies as well as partnerships with minority-serving institutions and the inclusion of faculty and students from underrepresented/underserved groups. ***Timeline:*** Include a timeline for achieving stated goals and objectives, including significant	maximum 17 pages

Proposal Content	Page Guideline
milestones. ***Sustainability:*** Describe how the research capability will be sustained beyond the funding period. There should be a clear plan for sustaining the research beyond NASA EPSCoR funding and for seeking non-EPSCoR funding. Identify potential CAN's, NRA's, RFP's, etc., specifically as examples. ***Dissemination:*** Outline the plan for disseminating the results to NASA and the broader community. ***Evaluation:*** Describe the evaluation plan for measuring project success. The evaluation plan should be appropriate for the scope of the proposed activity and include a discussion of data collection and analysis procedures. Note the evaluation plan may need to be modified at the time of the award to ensure it includes contributions to NASA's Performance Assessment Rating Tool (PART) objectives. ***Management:*** Identify the roles and responsibilities of team members involved in the development and execution of proposed activity. ***Prior NASA EPSCoR Research Support:*** Demonstrate the effectiveness of prior NASA EPSCoR research support. If any PI or co-PI identified on the project has received NASA EPSCoR research funding (excluding Core (from EPSCoR 2000 – 2006 program) and Research Infrastructure Development (RID)) in the past five years, information on the award(s) is required. Refer to the section on Management and Evaluation, part C in Section VIII. Proposal Evaluation Criteria and Selection Process for details. See Section VIII. Proposal Evaluation Criteria and Selection Process for a detailed description of the evaluation criteria.	
References and Citations	as needed
Biographical Sketches: Submit sketches for key personnel using the following guidelines: **PI, Co-I/Science-PI:** maximum 2 pages **Co-I, Co-I/Institutional-PI :** 1 page **Other Key Personnel:** 1 page	as needed
Current and Pending Support: Information must be provided for all ongoing and pending projects and proposals that involve the proposing PI, Co-I/Science–PI.	as needed
Letters of Support: In NSPIRES team members need to confirm their participation by establishing an organizational relationship. The user's guide for this process can be accessed at: **http://nspires.nasaprs.com/tutorials/UG_TM_Confirm.pdf**. NSPIRES no longer has a statement of commitment.	as needed
Budget Justification: Narrative and Details: Include the *Table of Proposed Work Effect* (see Appendix E, Section 2.C.) and a budget breakdown for each year of proposed work, along with total budget figures for the entire period of performance. The Budget should include proposing organization budget, summary of work effort for proposal personnel, itemized lists detailing expenses within major budget categories, detailed subcontract/subaward budgets, and sources and uses of cost sharing. Notes on Budget:	as needed

Proposal Content	Page Guideline
• The annual funding request for each research proposal should reflect a year-to-year distribution of funds that will give the project a strong start, but also sustain it at an effective level for the three-year period. • There is no cap on the funds for individual sub-task areas. However, the total funds requested for the proposed research must be no greater than $750,000. • Dollar amounts proposed with no explanation (e.g., Equipment: $12,000, or Labor: $35,000) may reduce proposal acceptability, or cause delays in funding should the proposal be selected. Each item should be explained in reasonable detail. • Direct labor costs should be separated by titles or disciplines (e.g., Principal Investigator, graduate research assistant, clerical support, etc.) with estimated hours, hourly rates, and total amounts of each. Indirect costs should be sufficiently explained such that evaluators can understand the basis of the proposed costs. • Other Costs (with each significant category detailed) should be explained in reasonable detail, and substantiated whenever possible. For example, proposed equipment purchases should specify the type of equipment, number of units, and unit cost. • Requested domestic travel should include purpose, the number of trips and expected location, duration of each trip, airfare, and per diem. There is no limit placed on domestic travel. Domestic travel should be appropriate and reasonable to conduct the proposed research. • Foreign travel is allowable up to $3,000/trip and a total of two trips (maximum $6,000) for the entire jurisdiction EPSCoR proposal. Requested foreign travel should include justification, purpose, the number of trips and expected location, duration of each trip, airfare, and per diem. • All costs to be incurred by NASA Centers on behalf of NASA EPSCoR for the use of facilities and contracted technical work should be identified in the research proposal funding request. In advance of proposal submission, proposers should contact NASA installations (see Appendix D for points of contact) from which services will be requested in order to ascertain the availability and anticipated costs of such services. Salaries and travel of NASA civil servants, as well as other in-house research provided by NASA Centers provided at no cost to the project, cannot count as part of the cost share. These costs may be identified as "Federal Match" in a separate section of the budget.	

VIII. Proposal Evaluation Criteria and Selection Process

Successful research proposals are likely to be those that provide sound contributions to both immediate and long-term scientific and technical needs of NASA as explicitly expressed in current NASA documents and communications, as well as contribute to the overall research infrastructure, science and technology capabilities, higher education, and economic development of the jurisdiction. They will also include pragmatic plans for generation of sustained non-EPSCoR support.

Evaluation criteria for EPSCoR are based on NASA's Education Operating Principles as described in the *NASA Education Strategic Coordination Framework*. All NASA education projects are evaluated according to these principles:

- Relevance
- Content
- Diversity
- Evaluation
- Continuity

- Partnership/Sustainability

Proposals will be evaluated based on the following criteria: Intrinsic Merit, NASA Alignment and Partnerships, Management and Evaluation, and Budget Justification: Narrative and Details. The numbered lists after each criterion should not be construed as any indication of priority or relative weighting. The numbering is provided for clarity and facilitation of proposal development.

A. Intrinsic Merit (35%)

(1) **Proposed Research.** Proposals should provide a detailed narrative of the proposed research activity, including the scientific and/or technical merit of the proposed research, unique and innovative methods, approaches, concepts, or advanced technologies, and the potential impact of the proposed research on its field.

(2) **Existing Research.** Proposals should provide baseline information about current research activities within the jurisdiction in the proposed research area, including projects currently funded under NASA EPSCoR. If relevant, the narrative should include a brief history of NASA EPSCoR Research projects in the jurisdiction and should include a discussion of how these previous NASA EPSCoR research projects and Core or RID activities have helped prepare the institution and jurisdiction for and contributed to the proposed research activities. If the proposed research represents a new direction for the jurisdiction, the ability of the technical team to carry out the research should be explained. Other relevant research and technology development programs within the jurisdiction should be included.

B. NASA Alignment and Partnerships (35%)

(1) **Relevance to NASA and Jurisdiction.** Proposals should discuss the value of the proposed research to NASA's research priorities. Proposals should articulate clearly how the proposed research activities build capacity and develop national competitiveness in the jurisdiction. In particular, proposers should explain how the current proposed research fits into the strategic plan for NASA EPSCoR-related research in the jurisdiction. Note: each proposal must contain a section entitled "Relevance to NASA and Jurisdiction." Proposers should provide specific information on how they determined the relevance of the proposed effort to NASA. The relevance to NASA and the jurisdiction must be balanced.

(2) **Partnerships/Sustainability.** Proposals should delineate mechanisms for building partnerships with NASA Mission Directorates, the OCT, and/or Centers as well as universities, industry, and/or other government agencies to enhance the ability of the jurisdiction to achieve its objectives, to obtain and leverage sources of additional funding, and/or to obtain essential services not otherwise available. A plan for achieving national research competitiveness should also be presented.

(3) **NASA Interactions.** Proposals should describe the use of NASA content, people, or facilities in the execution of the research activities. They should describe current and/or previous interactions, partnerships, and meetings with NASA researchers, engineers, and scientists in the area of the proposed research, and discuss how future partnerships between the institution's researchers and personnel at the Mission Directorates, the OCT, and/or Centers will be fostered. The name(s) and title(s) of NASA researchers with whom the proposers will partner should be included. The utilization of NASA venues to publish accomplishments should be also considered.

(4) **Diversity.** Proposals should contain plans to effectively reach underrepresented and underserved students and researchers. Jurisdictions are encouraged to seek ongoing opportunities to develop relationships between minority-serving institutions and majority research universities within the jurisdiction, NASA Mission Directorates, the OCT, and Centers, and industry, as appropriate.

C. Management and Evaluation (15%)

This section should describe the management structure for the proposed research, and coordination with the jurisdiction's NASA EPSCoR project management. The following elements should be included:

(1) **Results of Prior NASA EPSCoR Research Support:** If the current EPSCoR director has administered NASA EPSCoR research awards (excluding Core & Research Infrastructure Development (RID)) that were completed in the past five years, he or she must demonstrate accomplishments commensurate with the managerial and administrative expectations of the award. The EPSCoR director will not be assessed on his/her expertise in the specific proposed research area. The following information must be provided: the NASA EPSCoR award number(s), amount(s) the title of the projects(s); and period(s) of support; primary outcomes resulting from the NASA EPSCoR award, including a summary discussion of accomplishments compared to the proposed outcomes from the original proposal; coordination with the research and technical development priorities of NASA, and contribution(s) to the overall research capacity of the jurisdiction.

(2) **Personnel:** A list of the personnel participating in this research program, including Principal Investigator and all Co-Investigators, Research Associates, Post-Doctoral Fellows, Students (projected numbers of both graduate and undergraduates), and other research participants should be included. The credentials of the researchers are important; however EPSCoR includes the concept of encouraging and helping new researchers.

(3) **Research Project Management:** A description of the management structure of the proposed research project, and the extent to which the project's management and research team will lead to a well-coordinated, efficiently-managed, and productive effort should be included.

(4) **Multi-Jurisdiction Projects:** If the proposed research is collaboration between more than one NASA EPSCoR jurisdiction, one jurisdiction must be identified as the lead while additional partners should be identified as subawardees. The proposal should detail the inter-jurisdiction management structure of the proposed research project, including a list of the participating jurisdictions, and the participating universities and agencies within each jurisdiction. Multi-jurisdictional proposals may not exceed the $750,000 limit.

(5) **Project Evaluation:** Proposals should document the intended outcomes and offer metrics to demonstrate progress toward and achievements of these outcomes. They should discuss metrics to be used for tracking and evaluating project progress. Milestones and timetables for achievement of specific objectives during the award period should be presented. The proposal should describe an appropriate evaluation plan/process to document outcomes and demonstrate progress toward achieving objectives of proposed project elements. Evaluation methodology should be based upon reputable models and techniques appropriate to the content and scale of the project.

Projects should implement improvements throughout the entire period of performance based on ongoing evaluation evidence.

Of particular importance to NASA EPSCoR is a reliable method for longitudinal tracking of student progress. If the proposal includes a plan for student support, the proposal should provide for gathering student performance data for evaluating the effectiveness of NASA EPSCoR. Projects will be required to utilize the NASA OEPM system for longitudinal tracking of student participants.

(6) **Tracking of Program Progress:** To the extent reasonable, proposals should discuss how the following will be assessed:

- the progress and potential towards achieving self-sufficiency beyond the award period of the research capabilities developed under this grant; and
- the potential for the proposed research area to continue to grow in importance in NASA-related fields in the future.

(7) **Continuity:** If applicable, proposals should describe the role of EPSCoR in connecting to other NASA education or research projects. They should include methods for effecting the transition of participants to succeeding levels of involvement or facilitating career opportunities. This principle also refers to continuity in research capability. The proposal may contain project efforts directed particularly at involving young researchers in new fields of research that have promise to provide NASA with long-term quality research and development.

D. Budget Justification: Narrative and Details (15%)

A detailed budget, including NASA and cost-share funds, is required for the three years of performance. Preparation guidelines for the budget can be found in the *NASA Guidebook for Proposers*, Section 2.3.10 which includes a suggested format to use in preparing the proposed budget. All sources of cost-sharing shall be described and documented. The budget will be evaluated based upon the clarity and reasonableness of the funding request. A budget narrative should be included that discusses other budgetary issues such as the extent and level of jurisdiction, industrial, and institutional commitment and financial support, including resources (staff, facilities, laboratories, indirect support, waiver of indirect costs, etc.).

The proposed budget should be adequate, appropriate, reasonable, and realistic, and demonstrate the effective use of funds in alignment with the proposed project. This section should include detailed budgets for each of the three years of the funding and a summary budget for all three years. The proposed budget should reflect clear alignment with the content and text of the proposal. The budget should contain sufficient cost detail and supporting information to facilitate evaluation.

Appendix A. NASA Missions

NASA's Mission *to pioneer the future in space exploration, scientific discovery, and aeronautics research*, draws support from four Mission Directorates and the Office of the Chief Technologist, each with a specific responsibility.

- **Aeronautics Research Mission Directorate (ARMD)** conducts vital research to make air travel more efficient, safe, green, and to uncover leading-edge solutions for the Next Generation Air Transportation System (NextGen) in the United States. ARMD's fundamental research in traditional aeronautical disciplines and emerging disciplines helps address substantial noise, emissions, efficiency, performance and safety challenges that must be met in order to design vehicles that can operate in the NextGen. (http://www.aeronautics.nasa.gov)
- **Exploration Systems Mission Directorate (ESMD)** Agency role is to develop a sustained human presence on the moon; to promote exploration, commerce, and U.S. preeminence in space; and to serve as a stepping-stone for the future exploration of Mars and other destinations. ESMD establishes the NASA exploration research and technology development agenda. Specifically, ESMD develops capabilities and supporting research and technology that will enable sustained and affordable human and robotic exploration. It also works to ensure the health and performance of crews during long-duration space exploration. In the near-term, ESMD does this by developing robotic precursor missions, human transportation elements, and life-support systems. (http://www.exploration.nasa.gov)
- **Science Mission Directorate (SMD)** leads the Agency in four areas of research: Earth Science, Heliophysics, Planetary Science, and Astrophysics. SMD works closely with the broader scientific community, considers national initiatives, and uses the results of National Research Council studies to define a set of "Big Questions" in each of these four research areas. These questions, in turn, fuel mission priorities and the SMD research agenda. The SMD also sponsors research that both enables, and is enabled by, NASA's exploration activities. SMD has a portfolio of Education and Public Outreach projects that are connected to its research efforts. (http://nasascience.nasa.gov)
- **Space Operations Mission Directorate (SOMD)** provides the Agency with leadership and management of NASA space operations related to human exploration in and beyond low-Earth orbit. SOMD enables current space exploration in low earth orbit through its Space Shuttle and International Space Station Programs. SOMD is also responsible for Agency leadership and management of NASA space operations related to Launch Services, Space Transportation, and Space Communications in support of both human and robotic exploration programs. (http://www.spaceoperations.nasa.gov)
- **Office of the Chief Technologist (OCT)** serves as the NASA Administrator's principal advisor and advocate on matters concerning agency-wide technology policy and programs. OCT is responsible for direct management of NASA's Space Technology programs and for coordination and tracking of all technology investments across the agency. The office also serves as the NASA technology point of entry and contact with other government agencies, academia and the commercial aerospace community. The office is responsible for developing and executing innovative technology partnerships, technology transfer and commercial activities and the development of collaboration models for NASA. (http://www.nasa.gov/offices/oct/home/index.html)

Appendix B: NASA Education Strategic Coordination Framework

Overview

As identified in the 2006 NASA Strategic Plan, education is one of the Agency's cross-cutting management strategies. High achievement in STEM education is essential to the accomplishment of NASA's mission. NASA contributes to national efforts for achieving excellence in STEM education through a comprehensive education portfolio implemented by the Office of Education, the Mission Directorates, the Office of the Chief Technologist, and the NASA Centers. NASA will continue the Agency's tradition of investing in the Nation's education programs and supporting the country's educators who play a key role in preparing, inspiring, exciting, encouraging, and nurturing the young minds of today that will manage and lead the Nation's laboratories and research centers of tomorrow.

The ***NASA Education Strategic Coordination Framework: A Portfolio Approach*** describes the alignment of NASA's education portfolio with the *2006 NASA Strategic Plan* and creates an agency-wide strategic planning, implementation and evaluation framework for NASA's investments in education. This Framework establishes three educational outcomes:

- **Outcome 1 – Higher Education:** Contribute to the development of the STEM workforce in disciplines needed to achieve NASA's strategic goal through a portfolio of investments.
- **Outcome 2 – Elementary and Secondary Education:** Attract and retain students in STEM disciplines through a progression of educational opportunities for students, teachers, and faculty.
- **Outcome 3 – Informal Education:** Build strategic partnerships and linkages between STEM formal and informal education providers that promote STEM literacy and awareness of NASA's mission.

The plan encompasses all education efforts undertaken by NASA and guides the Agency's relationships with external education partners. Proposers are strongly encouraged to become familiar with this document. It may be found at: http://education.nasa.gov/about/strategy.

NASA Education Outcomes and Objectives

All NASA Higher Education projects, including EPSCoR, directly support Outcome 1. Outcome 1 comprises five Objectives. EPSCoR directly contributes to Objectives 1.1 and 1.5 and may also contribute to Objectives 1.2, 1.3, and 1.4.

- **Objective 1.1 – Faculty and Research Support:** Provide NASA competency-building education and research opportunities for faculty, researchers, and post-doctoral fellows.
- **Objective 1.2 – Student Support:** Provide NASA competency-building education and research opportunities to individuals to develop qualified undergraduate and graduate students who are prepared for employment in STEM disciplines at NASA, industry, and higher education.
- **Objective 1.3 – Student Involvement, Higher Education:** Provide opportunities for groups of post-secondary students to engage in authentic NASA-related mission-based research and development activities.
- **Objective 1.4 – Course Development:** Develop NASA-related course resources for integration into STEM disciplines.

- **Objective 1.5 – Targeted Institution Research and Academic Infrastructure:** Improve the ability of targeted institutions to compete for NASA research and development work.

Appendix C. Definitions

- Center – The ten NASA Centers including the Jet Propulsion Laboratory (JPL). For purposes of collaboration in NASA EPSCoR, JPL is considered a NASA Center.
- Cooperative Agreement – An agreement similar to a grant with the exception that NASA and the recipient are each expected to have substantial technical interaction for the performance of the project. Cooperative agreements are managed pursuant to the policies set forth in the *Grant and Cooperative Agreement Handbook.*
- Directorate – One of NASA's four Mission Directorates—Aeronautics Research, Exploration Systems, Science, and Space Operations.
- Jurisdiction – States or commonwealths eligible to submit proposals in response to this CAN.
- NASA Research Contact – The NASA Research Contact is the primary NASA point of contact during the proposal writing stage for the proposed research area. If the proposer has contacted and received permission from a NASA scientific or technical person, that individual may be listed in the proposal as the NASA Research Contact. Otherwise the NASA Research Contact is the University Affairs Officer at the Center, or the NASA Mission Directorate/OCT contact at NASA Headquarters. (See Appendix D.)
- Partnership – A reciprocal and voluntary relationship between the project personnel and NASA, industry or other partners, to cooperatively achieve the goals of the proposed research.
- Program Assessment Rating Tool (PART) – The Program Assessment Rating Tool (PART) was developed by the Office of Management and Budget (OMB) to assess and improve performance of a Federal agency's programs.
- Principal Investigator (PI) – For this EPSCoR CAN, the Principal Investigator is the jurisdiction's EPSCoR director. The Principal Investigator has an appropriate level of authority and is responsible for proper conduct of the research, including appropriate use of funds and administrative requirements such as the submission of the scientific progress reports to the Agency. The PI is the administrator for the proposal.
    - Co-Investigator (Co-I) – A Co-I is a member of the proposal's investigation team who is a critical "partner" for the conduct of the investigation through the contribution of unique expertise and/or capabilities.
    - Co-I/Science-PI – For this CAN, one Co-I should be designated as the Co-I/Science-PI for those cases where the person leading the scientific direction of the proposed work is not the PI. The formally stated PI will still be held responsible for the overall direction of the effort and use of funds.
    - Co-I/Institutional-PI – A Co-I at an organization other than that of the PI institution who is making a major contribution to the proposal and serves as the point of contact at the Co-I's institution, may also be designated as the Co-I/Institutional-PI. For this CAN, the Science-PI may also serve as an Institutional-PI. In these cases, the individual should be identified as the Science-PI in the proposal cover page.
- Research area – One of the areas of research interest for the NASA Mission Directorate(s) and the Office of the Chief Technologist.

- Research Group – A group of researchers that undertakes one of the specific research areas proposed.
- Research Student – A student (undergraduate, graduate, or postdoctoral) who receives a research appointment in direct support of the NASA EPSCoR research in the research proposals.
- Technical Monitor – A NASA scientific or technical person designated by the NASA EPSCoR office to monitor the research project.
- Underrepresented Minority – Refers to persons from racial and ethnic groups whose enrollment in STEM education or participation in STEM professions is much smaller than that group's representation in the general population. African Americans, Hispanics/Latinos, and Native Americans and Pacific Islanders currently fit this definition.

Appendix D: NASA Points of Contact

Additional information regarding NASA EPSCoR can be obtained from the following:

Luis C. Rabelo
Project Manager, NASA EPSCoR
Office of Education
NASA Kennedy Space Center
HQ EX-E
Kennedy Space Center, FL 32899-0001
(321) 867-5283
E-mail: Luis.C.Rabelo@nasa.gov

NASA Research Contacts

Technical and scientific questions about research opportunities in this announcement may be directed to the appropriate contact below. Discussions of research with appropriate NASA Center or JPL personnel are strongly encouraged.

NASA Mission Directorate Contacts

Aeronautics Research Mission Directorate Tony Springer Education Liaison NASA Headquarters Phone: (202) 358-0848 Tony.Springer@nasa.gov	Science Mission Directorate Stephanie Stockman Education/Public Outreach Lead NASA Headquarters Phone: (202) 358-0039 Stephanie. A. Stockman@nasa.gov
Exploration Systems Mission Directorate Jerry Hartman Education Lead NASA Headquarters Phone: (202) 358-1451 Jerry.G.Hartman@nasa.gov	Space Operations Mission Directorate Alotta Taylor Director, Mission Support and Communications NASA Headquarters Phone: (202) 358-2534 Alotta.E.Taylor@nasa.gov

NASA Office of the Chief Technologist

Claudia Meyer Space Technology Research Grants Program Executive NASA Headquarters Claudia.M.Meyer@nasa.gov

NASA Center Contacts

Ames Research Center Natalie Gore AERO Institute Phone: (650) 604-2336 Natalie.E.Gore@nasa.gov	Kennedy Space Center Benita DeSuza Education Project Specialist Phone: (321) 861 9083 Benita.W.Desuza@nasa.gov
Dryden Flight Research Center Katrina Y. Emery Education Lead Phone: (661) 276-5807 Katrina.Y.Emery@nasa.gov	Langley Research Center Thomas Pinelli University Affairs Officer Phone: (757) 864-2491 Thomas.E.Pinelli@nasa.gov
Goddard Space Flight Center Lucy McFadden Chief of University Affairs Phone: (301) 614-6941 Lucyann.A.McFadden@nasa.gov	Glenn Research Center David Kankam University Affairs Officer Phone: (216) 433-6143 Mark.D.Kankam@nasa.gov
Jet Propulsion Laboratory Linda Rodgers University Programs Administrator Phone: (818) 354-3274 Linda.Rodgers@jpl.nasa.gov	Marshall Space Flight Center Frank Six University Affairs Officer Office of Academic Affairs (HS30) Phone: (256) 961-7701 Norman.F.Six@nasa.gov
Johnson Space Center Kamlesh Lulla Deputy University Research Officer Phone: (281) 483-3065 Kamlesh.P.Lulla@nasa.gov	Stennis Space Center Nathan Sovik University Affairs Officer Phone: (228) 688-7355 Nathan.A.Sovik@nasa.gov

Appendix E: Proposal and Submission Information

1. Proposal Instructions and Requirements

All information needed to respond to this solicitation is contained in this CAN and in the companion *NASA Guidebook for Proposers January 2010 Edition* located at http://www.hq.nasa.gov/office/procurement/nraguidebook. Proposers are responsible for understanding and complying with its procedures for the successful, timely preparation and submission of their proposals. Proposals that do not conform to its standards may be declared noncompliant and rejected without review.

The introductory material, as well as the appendices, of the *NASA Guidebook for Proposers* provide additional information about the entire CAN process, including NASA policies for the solicitation of proposals, guidelines for writing complete and effective proposals, and NASA's general policies and procedures for the review and selection of proposals and for issuing and managing the awards to the institutions that submitted selected proposals.

2. Content and Form of the Proposal Submission

a. Electronic Proposal Submission

All proposals submitted in response to this CAN must be submitted in a fully electronic form. No hard copy of the proposal will be accepted. Electronic proposals must be submitted by the authorized organization representative (AOR) at the proposal Principal Investigator's institution. Electronic submission by the AOR serves as the required original signature by an authorized official of the proposing institution.

Proposers may opt to submit proposals in response to this CAN via either of two different electronic proposal submission systems: NSPIRES, located at http://nspires.nasaprs.com (see Section iv below), or Grants.gov located at http://www.grants.gov (see Section v below). *Proposers should not submit the same proposal to both electronic submission systems.* NASA plans to use the NSPIRES system to facilitate the review process so all proposals received through Grants.gov will be transferred into NSPIRES.

Note carefully the following requirements for submission of an electronic proposal regardless of the intent to submit via NSPIRES or Grants.gov:

- Every institution that intends to submit a proposal to NASA in response to this CAN must be registered in NSPIRES. This applies whether proposals are submitted via NSPIRES or Grants.gov. Every institution that intends to submit a proposal through Grants.gov must register under that system as well as NSPIRES. Registration for either proposal data system must be performed by an institution's electronic business point-of-contact (EBPOC) in the Central Contractor Registry (CCR).
- Any institution requesting NASA funds through the proposed investigation must be listed on the Proposal Cover Page. NASA will not fund institutions that do not appear on the Proposal Cover Page.
- Each individual team member named on the proposal's electronic cover page must be individually registered in NSPIRES. This applies whether proposals are submitted via NSPIRES or Grants.gov.
- Each individual team member named on the proposal's electronic cover page must specify an institutional affiliation. The institutional affiliation specified must be the institution through

which the team member is participating in the proposed investigation. If the individual has multiple affiliations, then this institution may be different from the individual's primary employer or preferred mailing address.

Generically, an electronic proposal consists of one or more electronic forms, including an electronic cover page and one or more attachments. The attachments contain all sections of the proposal, including the project description as well as all required and allowed appendices; see Section 2.b. below for further requirements.

Submission of electronic proposals via either NSPIRES or Grants.gov requires several coordinated actions from the proposing institution. In particular, when the PI has completed entry of the data requested in the required electronic forms and attachment of the allowed PDF attachments, including the project description section, an official at the PI's institution who is authorized to make such a submission, referred to as the authorized organization representative (AOR), must submit the electronic proposal (forms plus attachments). Coordination between the PI and his/her AOR on the final editing and submission of the proposal materials is facilitated through their respective accounts in NSPIRES and/or Grants.gov. Note that if one individual is acting in both the PI and AOR roles, he/she must ensure that all steps in the process are taken, including submitting the proposal from the institution.

b. Proposal Format and Contents

All proposals submitted in response to this CAN must include the appropriate required electronic forms available through either of two proposal submission systems, NSPIRES or Grants.gov.

The project description and other required sections of the proposal must be submitted as searchable, unlocked PDF files that are attached to the electronic submission using one of the proposal submission systems. Proposers must comply with any format requirements specified in this CAN and in the *NASA Guidebook for Proposers*, Section 2. Only appendices/attachments that are specifically requested in either this CAN or in the *NASA Guidebook for Proposers* will be permitted; proposals containing additional appendices/attachments may be declared noncompliant. The *NASA Guidebook for Proposers*, Section 2, provides detailed discussions of the content of proposals applicable to this CAN. Section VII. Proposal Preparation of this CAN provides a listing of required content elements.

In the event the information in this CAN is different from or contradicts the information in the *NASA Guidebook for Proposers*, the information in this CAN takes precedence.

Important note on creating PDF files for upload: It is essential that all PDF files generated and submitted meet the NASA requirements below. This will ensure that the submitted files can be transferred into NSPIRES regardless of whether the proposal is submitted via NSPIRES or Grants.gov. At a minimum, it is the responsibility of the proposer to: (1) ensure that all PDF files are unlocked and that edit permission is enabled – this is necessary to allow NSPIRES to concatenate submitted files into a single PDF document; and (2) ensure that all fonts are embedded in the PDF file and that only Type 1 or TrueType fonts are used. In addition, any proposer who creates files using TeX or LaTeX is required to first create a DVI file and then convert the DVI file to Postscript and then to PDF. See http://nspires.nasaprs.com/tutorials/PDF_Guidelines.pdf for more information on creating PDF documents that are compliant with NSPIRES. PDF files that do not meet the NASA requirements may be declared noncompliant and not submitted to peer review for evaluation.

c. Additional Requirement for Budget Format

In addition to the budget summary information provided in the NSPIRES or Grants.gov

Cover Page forms, all proposers are required to include more detailed budgets and budget justifications, including detailed subcontract/subaward budgets, in a format of their own choosing in the *Budget Justification*. For this CAN, this additional budget must be divided into two parts, the "*Budget Justification: Narrative*" and the "*Budget Justification: Details*," both as described in the *NASA Guidebook for Proposers*, Section 2.3.10.

The *Budget Justification: Narrative* includes the *Table of Proposed Work Effort* and the description of facilities and equipment, as well as the rationale and basis of estimate for all components of cost including procurements, travel (destination, purpose and number of travelers), publication costs, and all subawards/subcontracts. The *Table of Proposed Work Effort* must include the names and/or titles of all personnel (including postdoctoral fellows and graduate students, where known) necessary to perform the proposed investigation regardless of whether these individuals require funding from the current proposal. The number of person-months each person is expected to devote to the project must be given for each year. The *Budget Justification: Details* must include the detailed proposed budget including all of the Other Direct Costs and Other Applicable Costs specified in the *NASA Guidebook for Proposers*.

Note that failure to provide sufficient budget justification and data in the *Budget Justification: Narrative* (including the *Table of Proposed Work Effort*) and the *Budget Justification: Details* will prevent the peer review from appropriately evaluating the cost realism of the proposed effort. A finding by the peer review of "insufficient information to properly evaluate cost realism" will be considered a proposal weakness. Inconsistent information between these budget descriptions and the proposal text will also be considered a proposal weakness.

d. Submission of Proposals via NSPIRES, the NASA Proposal Data System

In order to submit a proposal via NSPIRES, this CAN requires that the proposer register key data concerning the intended submission with NSPIRES; NSPIRES is accessed at http://nspires.nasaprs.com. Potential applicants are urged to access this site well in advance of the proposal due date(s) of interest to familiarize themselves with its structure and enter the requested identifier information.

It is especially important to note that every individual named on the proposal's electronic *Cover Page* form (see below) as a proposing team member in any role, including Co-Investigators, must be registered in NSPIRES and that such individuals must perform this registration themselves; no one may register a second party, even the Principal Investigator of a proposal in which that person is committed to participate. This data site is secure and all information entered is strictly for NASA's use only.

All proposals submitted via NSPIRES in response to this CAN must include a required electronic *Cover Page* form that is accessed at http://nspires.nasaprs.com. This form comprises several distinct sections: a *Cover Page* that contains the identifier information for the proposing institution and personnel; a *Proposal Summary* that provides an overview of the proposed investigation that is suitable for release through a publicly accessible archive should the proposal be selected; and a *Budget Summary* of the proposed research effort. Unless specified in the program description itself, no other forms are required for proposal submission via NSPIRES. See the *NASA Guidebook for Proposers*, Sections 2 and 3, for further details.

The required elements of the proposal, including the project description, must be submitted as one or more PDF documents that are attached to the *Cover Page* using the tools in NSPIRES. It is possible that the complete proposal is submitted as a single, searchable, unlocked PDF document that contains the complete proposal, including the project description section and budget justification, assembled in the order provided in this CAN and uploaded using the tools in NSPIRES. One advantage of submitting the proposal as one PDF document as described above is

that it is easier for the proposer to create a table of contents that will be correct. If separate files are uploaded, there may be slight differences in page numbering due to the concatenation process. Any mismatch with the table of contents caused by this process does not impact the evaluation of the proposal.

NSPIRES will provide a list of all elements that make up an electronic proposal, and the system will conduct an element check to identify any item(s) that is (are) apparently missing or incomplete. The element check may produce warnings and/or identify errors. Uploading the proposal in one PDF file is likely to create warnings as part of the element check. These warnings should be ignored as warnings do not preclude proposal submission. Note, however, an error in the element check will preclude submission.

Proposers are encouraged to begin their submission process early. Tutorials and other NSPIRES help topics may be accessed through the NSPIRES online help site at http://nspires.nasaprs.com/external/help.do. For any questions that cannot be resolved with the available on-line help menus, requests for assistance may be directed by e-mail to nspires-help@nasaprs.com or by telephone to (202) 479-9376, Monday through Friday, 8:00 a.m. – 6:00 p.m. Eastern Time.

e. Submission of Proposals via Grants.gov

NASA offers proposers the option to utilize Grants.gov to prepare and submit proposals in response to this CAN. Grants.gov allows institutions to electronically find and apply for competitive grant opportunities from all Federal grant-making agencies; it provides a single access point for over 1,000 grant programs offered by the 26 Federal grant-making agencies. The U.S. Department of Health and Human Services is the managing partner for Grants.gov.

In order to submit a proposal via Grants.gov, Grants.gov requires that the Principal Investigator download an application package from Grants.gov. Identifying the appropriate application package requires the funding opportunity number for that program; the funding opportunity number may be found in the *Summary of Key Information* subsection. Proposals submitted via Grants.gov must be submitted by the AOR.

Submitting a proposal via Grants.gov requires the following steps:

- Follow Grants.gov instructions provided at the website to download any software tools or applications required to submit to Grants.gov.
- Download the application package from Grants.gov by selecting “Download grant application packages” under “Apply for Grants” at http://www.grants.gov.
- Complete the required Grants.gov forms including the SF424 Research and Related (R&R) Application for Federal Assistance, R&R Other Project Information, R&R Senior/Key Person Profile, and R&R Budget. Every named individual must be identified with the institution through which they are participating in the proposal, regardless of their place of permanent employment or preferred mailing address.
- Complete the required NASA specific forms: NASA Other Project Information, NASA Principal Investigator and Authorized Representative Supplemental Data Sheet, NASA Senior/Key Person Supplemental Data Sheet (this form is only required if there are Senior/Key Persons other than the Principal Investigator).
- Create a proposal in PDF including the project description and all other required proposal sections (see the *NASA Guidebook for Proposers*, Section 2). Upload sections as separate PDFs as prompted by Grants.gov.

- Submit the proposal via the authorized organization representative (AOR); the proposal Principal Investigator may not submit the application to Grants.gov unless he/she is an AOR.
- Grant researchers do NOT need to register with Grants.gov. However, every individual named in the proposal as a proposing team member in any role, including PI, Co-Investigators, must be registered in NSPIRES (http://nspires.nasaprs.com) and those individuals must perform this registration themselves; no one may register a second party, even the PI of a proposal in which that person is committed to participate. This data site is secure and all information entered is strictly for NASA's use only.

Potential applicants are urged to access Grants.gov site well in advance of the proposal due date(s) of interest to familiarize themselves with its structure and download the appropriate application packages and tools.

Additional instructions for formatting and submitting proposals via Grants.gov may be found in the *NASA Guidebook for Proposers*, Sections 2 and 3. Instructions for the use of Grants.gov may be found in the *Grants.gov User Guide* at http://www.grants.gov/CustomerSupport.

Instructions for NASA-specific forms may be found in the application package and at http://nspires.nasaprs.com/Grants.gov. For any questions that cannot be resolved with the available on-line help menus and documentation, requests for assistance may be directed by e-mail to support@grants.gov or by telephone to (800) 518-4726.

3. Notice of Intent to Propose

A brief Notice of Intent (NOI) to propose is encouraged, but not required, for the submission of proposals to this solicitation. The information contained in an NOI is used to help expedite the proposal review activities and, therefore, is of considerable value to both NASA and the proposer. NOIs must be submitted by the jurisdiction NASA EPSCoR Director through NSPIRES (http://nspires.nasaprs.com). Note that NOIs may be submitted within NSPIRES directly by the proposal Principal Investigator; no action by an organization's AOR is required to submit an NOI. The NOI, at a minimum, should include a clear descriptive title and/or a scientific/technical summary of the anticipated research. If possible, the NOI may include the Mission Directorate, the OCT, and the NASA research area of interest.

Interested proposers must register with NSPIRES before it can be accessed for use; see Section 2.d. above. Since NOIs submitted after the deadline may still be useful to NASA, late NOIs may be submitted by e-mail as directed in the *NASA Guidebook for Proposers*, Section 3.1.

4. Proposal Funding Restrictions

In addition to the funding restrictions and requirements given in the *NASA Guidebook for Proposers* and the *Grant and Cooperative Agreement Handbook*, the following restrictions exist on the use of the federally-provided NASA EPSCoR funds and proposed cost-share funds under this CAN:

- Funds may not be used to fund research carried out by non-U.S. institutions. U.S. research award recipients may, however, directly purchase supplies and/or services that do not constitute research from non-U.S. sources. However, subject to export control restrictions, a foreign national may receive remuneration through a NASA award for the conduct of research while employed either full or part time by a U.S. institution. For additional guidance on foreign participation, see Section 1.6 of the *NASA Guidebook for Proposers* and NASA FAR Supplement Part 1835.016-70.

- Travel, including foreign travel, is allowed for the meaningful completion of the proposed investigation, as well as for reporting results at appropriate professional meetings. Foreign travel to meetings and conferences in support of the jurisdiction's NASA EPSCoR research project is an acceptable use of NASA EPSCoR funds, with an upper limit of $3,000 per trip for up to two separate years of a jurisdiction's proposal (i.e., the maximum amount the jurisdiction can request for foreign travel is $3,000 total in any one year and a limit of $6,000 total for each research proposal). EPSCoR support should be acknowledged by EPSCoR research project number in written reports and publications. Note that domestic travel does not have a limit. Domestic travel should be appropriate and reasonable to conduct the proposed research.
- The construction of facilities is not an allowable cost any of the programs solicited in this CAN. For further information on allowable costs, refer to the cost principles cited in the *Grant and Cooperative Agreement Handbook*, 14 Code of Federal Regulations (CFR), Section 1260.127.
- NASA EPSCoR funding cannot be used to purchase general purpose equipment, e.g. desktop workstations, office furnishings, reproduction and printing equipment, etc. as a direct charge. Special purpose equipment purchases (i.e. equipment that is used only for research, scientific, and technical activities directly related to the proposed research activities) are allowed and can be reflected as a direct charge as per NASA Grants and Cooperative Agreement Handbook, Section A 1260.27.

5. Conflict of Interest Check Information

NASA expects all peer reviewers to disclose all conflicts of interest, whether they are situations which may be actual conflicts of interest or which may give the appearance of a conflict of interest. Peer reviewers are also expected to disclose situations which may give the appearance of bias, or may cause a reasonable observer to question the ability of the reviewer to provide an unbiased evaluation of a proposal (see the *NASA Guidebook for Proposers*, Appendix E.3). Peer reviewers are required to sign a non-disclosure/conflict of interest form prior to being granted access to proposals.

Appendix F: Useful Web Sites

- NASA
  http://www.nasa.gov

- NASA Office of Education:
  http://education.nasa.gov

- NASA Education Strategic Coordination Framework
  http://education.nasa.gov/about/strategy

  http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Strategic_Coordination_Framework.html

- Vision for Space Exploration
  http://www.nasa.gov/missions/solarsystem/explore_main.html

- NASA Grant and Cooperative Agreement Handbook
  http://prod.nais.nasa.gov/pub/pub_library/grcover.htm

- NASA Centers & Facilities:
  http://www.nasa.gov/offices/education/centers/index.html

- Guidebook for Proposers Responding to a NASA Research Announcement
  http://www.hq.nasa.gov/office/procurement/nraguidebook

- NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES)
  http://nspires.nasaprs.com

- Office of the Chief Technologist Overview
  http://www.nasa.gov/pdf/485335main_OCT_Overview_slides_TAGGED.pdf