NASA Kentucky EPSCoR Research Area (RA) 2016-2017 Request for Pre-Proposals

Announcement: RFP-17-003

Release Date: September 8, 2016

Required NOI Due: 11:59 pm EDT, Wednesday, September 21, 2016
Pre-proposals Due: 5:00 pm EDT, Thursday, October 27, 2016
Pre-proposal files submitted online at nasa.engr.uky.edu

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Proposal forms, FAQ, and additional information available:
nasa.engr.uky.edu/epscor and
nasa.engr.uky.edu/requests-for-proposals

NASA KY EPSCoR RA 2016-2017 Request for Pre-Proposals

NASA EPSCoR Research Area Award Overview

The National Aeronautics and Space Administration (NASA) Office of Education, in cooperation with NASA's four Mission Directorates (MD) (Aeronautics Research, Human Exploration and Operations, Science, and Space Technology) 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 MD and contribute to the overall research infrastructure, science and technology capabilities, higher education, and economic development of the jurisdiction (Kentucky).

The 2017 NASA Cooperative Agreement Notice (CAN) is expected to be available at nspires.nasaprs.com in late 2016. Prior to its release, proposers may refer to the previous RA CAN (NNH16ZHA001C 2016) for descriptions of the national program objectives and proposal guidelines

NASA Kentucky invites pre-proposal submissions for in-state selection to propose to the national EPSCoR RA solicitation addressing the national interests of NASA and state needs of Kentucky:

Deadlines:
1) Required NOI to be submitted by email to nasa@uky.edu by **11:59 pm EDT, Wednesday, September 21, 2016**.
2) Pre-proposal files to be submitted online at nasa.engr.uky.edu by **5:00 pm EDT, Thursday, October 27, 2016**.

Number of Pre-Proposals Selected: One pre-proposal will be selected for development into a full proposal to be submitted by NASA Kentucky as Kentucky's entry in the national competition. The pre-proposal submission and selection process will be conducted according to guidelines and timeline described below.

Anticipated Size of Awards: Researchers (designated as the Science PI) may request up to $675,000 in federal funds over three years with full indirect costs (F&A) and $225,000 in state funds over three years without F&A. Federal funds must be cost-shared at a level of at least 50% with in-kind and/or non-federal funds. The KY Statewide EPSCoR Committee typically allocates cost-share funds for the EPSCoR Research Area projects (pending availability of funds), should a project be selected by NASA for federal funding. Additional cost-share is viewed favorably in the national competition. A sample budget calculation is available in the FAQ at nasa.engr.uky.edu/epscor.

Eligibility: Pre-proposals will be accepted from institutions of higher education in Kentucky. Eligibility is *not* limited to NASA Kentucky Space Grant Consortium Affiliate Institutions. US Citizenship *not* required.

Period of Performance: NASA EPSCoR will support RA awards up to three years with an estimated start date in summer 2017.

Timeline:

Teleconference for interested proposers (optional)	4:00 pm EDT, Thursday, September 15, 2016
Non-binding NOI (required)	11:59 pm EDT, Wednesday, September 21, 2016
Pre-Proposal Submission Deadline	5:00 pm EDT, Thursday, October 27, 2016
Selection Announcement	Anticipated December 2016
Full Proposal Submission to NASA via NSPIRES	Anticipated March 2017

FAQ and additional information: nasa.engr.uky.edu/epscor

Optional Teleconference for Interested Proposers:
Interested researchers may participate in a conference call at 4:00 pm EDT, Thursday, September 15, 2016 to learn more about the submission and selection process, features of past successful proposals, and budget structure.

Call-in number: (877) 394-0659 Passcode: 7272187598

Required: Non-Binding Notice of Intent (NOI) to Submit a Pre-Proposal:
Interested researchers ***must*** send an email to nasa@uky.edu by **11:59 pm EDT, Wednesday, September 21, 2016** listing all of the following information: research topic, brief description of alignment with NASA (ARMD, HEOMD, SMD, STMD), and complete contact information (name, title, address, phone, email) for each of the following: Science PI, NASA Collaborator, and Science PI's Authorized Institutional Representative for Sponsored Projects.

General Pre-Proposal Guidelines

Only Science PIs who submitted a complete Notice of Intent by September 21, 2016 are eligible to submit a pre-proposal. Pre-proposals that omit required materials or exceed the page limits are considered non-compliant and may be rejected without review. Failure to complete proposed work on prior NASA Kentucky projects will be taken into consideration in selecting proposals. By submitting to this RFP, the proposer acknowledges that NASA Kentucky reserves the right to request backup financial information at any time during the course of an awarded project.

- *Special Purpose Equipment* may be purchased or used as cost-share.
- *General Purpose Equipment* may not be purchased or used as cost-share.
- *Travel* funds may be used for foreign and domestic travel as specified in NASA CAN.
- *Cost-share* must be 50% from non-Federal sources.

Submission Instructions

Pre-proposal forms are available at nasa.engr.uky.edu/requests-for-proposals/forms. All pre-proposals must be submitted via the NASA KY website as PDF files. Please title the pre-proposal documents according to the specified file naming convention, in which **PI** is the last name of the science PI.

- ☐ *SIGNED COVER PAGE:* Scan the signed original and save as PDF (filename format: PI_ERA_Cover_2017.pdf)
- ☐ *PRE-PROPOSAL PROJECT DESCRIPTION:* (filename format: PI_ERA_Project_2017.pdf)
  - 12 point font, 1 inch margins, single spaced
  - 10 page limit - See guidelines for required content
  - Additional pages - See guidelines for list of documents

Upload at nasa.engr.uky.edu by **5:00 pm EDT, Thursday, October 27, 2016**. Submissions after 5 pm may be rejected without review.

Pre-Proposal Review Process

The NASA KY EPSCoR Subcommittee and content specialists from outside the jurisdiction will review pre-proposals and rate them based on the following criteria:

- INTRINSIC MERIT (40%)
  - Proposed research
  - Prior research
- NASA ALIGNMENT AND PARTNERSHIPS (40%)
  - Relevance of proposed research to NASA and Kentucky priorities
  - Sustainability - specific plans for building partnerships and continued funding
  - Strength of NASA and industry collaborations
  - Diversity (institutional and personnel)
- MANAGEMENT: Management and evaluation; successful and timely completion of prior proposed NASA Kentucky projects and reporting (10%)
- BUDGET: Reasonableness of budget narrative (10%)

The review process will consider funding history and prior reporting compliance of the research team to assess their readiness to propose to the national competition. During review, the Director will contact NASA collaborators identified in the pre-proposal to evaluate strength of the partnership and involvement in the pre-proposal development. Note: In the national competition, strength of partnership is a major factor. As a panel, the reviewers will recommend to the NASA KY EPSCoR Director one pre-proposal for development into a full proposal. The selected research group will work with the Director to prepare the full proposal for submission via NSPIRES.

NASA Alignment and Collaboration

Proposals should align with the national NASA EPSCoR Program Objectives and the agency's missions and research as well as the interests of the state of Kentucky. See the following for more information on NASA and programmatic alignment.

Kentucky Statewide NASA EPSCoR Program Objectives

The statewide Kentucky EPSCoR Program mission is to enhance research and intellectual capacity of the state's universities and colleges by building and coordinating strategic investments in human capital necessary for Kentucky to excel in Federal R&D funding competitiveness. Derived from this statewide mission, NASA Kentucky EPSCoR has goals to enhance capacity through strategic investments focused on NASA-priority research areas and competitiveness for non-EPSCoR funding.

A key factor in achieving these goals is initiation of relationships between Kentucky's and NASA's researchers that develop into partnerships. Every aspect of the program emphasizes the process of relationship building, including the involvement of early-career faculty in helping to solve NASA's problems.

NASA KY EPSCoR investment is focused on NASA priorities including the ISS National Laboratory, and on Aeronautics, Science, Human Spaceflight and Space Technology missions, to develop researchers in Kentucky who are nationally and internationally recognized for contributions to their fields.

Equally important to building research capacity are the resulting contributions to economic development evidenced by securing non-EPSCoR follow-on research funding and supporting aerospace industrial development and associated job creation. Growth in economic development as a result of the NASA EPSCoR investment is therefore also a jurisdictional emphasis underlying all aspects of the program.

National NASA EPSCoR Program Objectives

- Contribute to and promote the development of research infrastructure 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 among NASA research assets, academic institutions, and industry;
- Contribute to the overall research infrastructure, science and technology capabilities, higher education, and/or economic development of the jurisdiction; and
- Work in close coordination with the NASA Space Grant program to improve the environment for science, mathematics, engineering, and technology education in the jurisdiction.

NASA Research and Technology Development Priorities

The NASA Office of Education identifies research and technology priorities based on alignment with NASA's Mission Directorates. The Aeronautics Research Mission Directorate (ARMD), Human Exploration and Operations Mission Directorate (HEOMD), Science Mission Directorate (SMD), and the Space Technology Mission Directorate (STMD) identify their priorities on the NASA website http://www.nasa.gov/about/directorates/index.html. For information on all of NASA's missions, please visit http://www.nasa.gov/missions/index.html.

NASA Mission Directorate (MD) Descriptions

Human Exploration and Operations Mission Directorate (HEOMD) provides the Agency with leadership and management of NASA space operations related to human exploration in and beyond low-Earth orbit. HEO also oversees low-level requirements development, policy, and programmatic oversight. The International Space Station represents NASA exploration activities in low-Earth orbit. Exploration activities beyond low-Earth orbit include the management of Commercial Space Transportation, Exploration Systems Development, Human Space Flight Capabilities, Advanced Exploration Systems, and Space Life Sciences Research & Applications. The directorate is similarly 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. (www.nasa.gov/directorates/heo/home/index.html)

Aeronautics Research Mission Directorate (ARMD) conducts vital research to make air travel more efficient, safe, sustainable, 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. NASA aeronautics has made decades of contributions to aviation. Nearly every aircraft today has a NASA-supported technology on board that helps the vehicle fly more safely and efficiently. Aeronautics research continues to play a vital supporting role to air travel and commerce by enabling game-changing technologies and innovation that allows the U.S. aviation industry to continue to grow and maintain global competitiveness. (www.aeronautics.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. (nasascience.nasa.gov)

Space Technology Mission Directorate (STMD) is responsible for developing the crosscutting, pioneering, new technologies and capabilities needed by the agency to achieve its current and future missions. STMD rapidly develops, demonstrates, and infuses revolutionary, high-payoff technologies through transparent, collaborative partnerships, expanding the boundaries of the aerospace enterprise. STMD employs a merit-based competition model with a portfolio approach, spanning a range of discipline areas and technology readiness levels. By investing in bold, broadly applicable, disruptive technology that industry cannot tackle today, STMD seeks to mature the technology required for NASA's future missions in science and exploration while proving the capabilities and lowering the cost for other government agencies and commercial space activities. Research and technology development take place within NASA Centers, in academia and industry, and leverage partnerships with other government agencies and international partners. (www.nasa.gov/directorates/spacetech/home/index.html)

Pre-Proposal Content Guidelines

A pre-proposal consists of a 10 page Project Description plus the specified Additional Pages. Successful proposals clearly describe how the research supports priorities of one or more of NASA's Mission Directorates, how the proposed effort enhances research capabilities within Kentucky of strategic importance to NASA, and how Kentucky researchers will continue to interact with NASA researchers.

Based on reviewer comments from the national selection process, top-ranked proposals include sound science plans and discriminating factors are the strength of partnerships, contributions to state infrastructure and diversity of the research team. Diversity refers to institutions as well as personnel.

Project Description (10 page limit): PI_ERA_ Project_2017.pdf
The project description includes a detailed description of the proposed research plan and addresses each of the sections described below. Page limit includes all illustrations, tables, and figures.

- ☐ **Abstract** (200-300 words)
- ☐ **Proposed Research**
- ☐ **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.
- ☐ **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 CANs, NRAs, RFPs, etc., specifically as examples.
- ☐ **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.
- ☐ **Prior NASA EPSCoR and NASA Kentucky Research Support:** Demonstrate the effectiveness of prior research support. If the Science PI or any Co-PI identified on the project has received NASA EPSCoR or NASA Kentucky research funding in the past five years, information on the award(s) and results is required.

Additional Pages
The following should be included in PI_ERA_ Project_2017.pdf after the 10-page Project Description:

- ☐ **Bibliography:** No page limit
- ☐ **Budget Narrative:** No more than 1 page describing how the award and cost-share funds will be used to support students, faculty, travel, materials and supplies, and research equipment. Describe in-kind contributions and plans to address the required 50% cost-share. Detailed numerical budgets are *not* required for the pre-proposal review.
- ☐ **Team Management Summary:** No more than 2 pages summarizing qualifications, roles, responsibilities and effort committed by team members.
- ☐ **Curriculum vitae:** 2 page CV for Science PI, 1 page CV for Co-PIs
- ☐ **Statements of Commitment:** Support letter or email from at least one NASA researcher indicating commitment to the proposed research project, relevance to NASA priorities and willingness to participate in proposal development. (See NASA KY FAQ for more information about NASA letters of support)