



## Solicitation of White Papers

Open to researchers at *any* of the institutions of higher learning within the **Mississippi NASA EPSCoR Jurisdiction**

issued by the

**Mississippi NASA EPSCoR Director**

in anticipation of

**FY 2022 NASA EPSCoR Cooperative Agreement Notice (CAN)**

## Sub-Orbital Flight Opportunity (SFO)

**APPLICATIONS MAY NOT BE SUBMITTED IN PAPER FORMAT**



### Key Dates

Release/Posted Date: Monday, September 20, 2021

White Paper Due Date: **Monday, December 13, 2021, 5:00pm**

**\*\*\*\*\* No late submissions will be accepted \*\*\*\*\***

*This announcement is to solicit a two-page “White Paper” from potential proposers at Mississippi universities.* Based on a review of the white papers, the Mississippi Research Consortium (MRC) will select *one* for development into a full proposal to this NASA EPSCoR program.

### Anticipated Solicitation Cycle

We anticipate NASA will issue the FY22 NASA EPSCoR Sub-Orbital Flight Opportunity CAN Solicitation on or about 15 October 2021 with an anticipated full-proposal due date on or about 15 February 2022. The Mississippi jurisdiction may submit *one* proposal for three years of funding for a maximum \$250,000 *per award*.

The anticipated timeline: white paper solicitation (this document) 9/20/21; NASA solicitation released mid-January 2022; white papers due 12/13/21; PI selection and notification of authorization to proceed with full proposal 1/21/22; full proposals due to NASA mid-April 2022. NASA solicitation and due dates are subject to change.

**For questions about this call for white papers, contact the MS NASA EPSCoR Director, Dr. Nathan Murray, [nmurray@olemiss.edu](mailto:nmurray@olemiss.edu), 662-915-3190.**

## Section 1. Solicitation Details

The Mississippi jurisdiction may submit *one* proposal to the FY22 NASA EPSCoR program for three years of research funding for a maximum \$250,000 *per award* (costs for flight services are award in addition to the research funding). **This announcement is to solicit a two-page “White Paper” from potential proposers at Mississippi universities.** *One* of these White Papers will be selected by the Mississippi Research Consortium (MRC) for development into a full proposal to this NASA EPSCoR program.

To be seriously considered for selection, white papers *must* demonstrate:

- direct ties with, and responsiveness to the objectives of, a NASA Center or Directorate;
- contribution to the overall research infrastructure and economic development of Mississippi
- involvement of faculty/students from groups underrepresented/underserved in STEM.

The most competitive white papers *may also* demonstrate partnerships or cooperative arrangements with one or more of other government agencies, business/industry, private research foundations, jurisdiction agencies, and/or local agencies, and/or additional academic institutions.

The MS NASA EPSCoR Director will conduct the first-stage review to assess the white paper’s responsiveness to the NASA EPSCoR CAN-SFO solicitation. The white papers, along with the first stage review assessments, will then be provided to the MRC,<sup>1</sup> who will judge and select the white paper for development into a full proposal for submission to NASA.

NASA EPSCoR research priorities are defined by the Mission Directorates, the Office of the Chief Technologist, and NASA’s ten Centers. Short descriptions of these, and URL links to longer descriptions, are attached as Appendix A to this document.

### 1.A. SUBMISSION OF WHITE PAPERS

All white paper submissions must be submitted to *both* the MS NASA EPSCoR Director (Dr. Nathan Murray, [nmurray@olemiss.edu](mailto:nmurray@olemiss.edu)) and the cognizant research official of the proposer’s home institution by 5 p.m. **Monday, 13 December 2021.**

### 1.B. EVALUATION CRITERIA

- Intrinsic Merit
- NASA Alignment and Partnerships
- Management and Evaluation
- Budget Justification: Narrative and Details

### 1.C. FORMAT FOR WHITE PAPERS

No more than 2 pages, 11- or 12-point font size in Times, Arial, or Calibri, single-spaced. Smaller font ok for tables/illustrations but should be easy to read.

White papers should be submitted via email to *both* the MS NASA EPSCoR Director *and* the cognizant research official of the proposer’s home institution as a single PDF file.

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<sup>1</sup> mississippiresearchconsortium.org

### **1.C.i. White Paper Sections:**

Cover Info, Project Summary and Description, and Budget Summary Justification.

*Altogether, these three sections must not exceed two pages.*

#### Cover Info:

In six lines at the top of the first page in the same style/size font as the rest of the submission, provide the following:

- (1) Submission Title (bold),
- (2) Science Investigator (Sc-I) and Institution Name (bold),
- (3) Title and Departmental Affiliation,
- (4) Other Participating Co-Investigators (co-Is) and Institutions,
- (5) NASA Point of Contact,
- (6) *Mission Directorates and priorities addressed.*

Separate the cover information from the project summary by a double space.

Here is an example of the cover information formatting ...

**Investigation of the How and Why**

**Sc-I: Sue Z. Que (University Name)**

Asst. Professor, Dept. of Understanding

Co-I: R. Green (USM), S. Brown (UM), J. Pink (MSU), E. Blue (JSU)

NASA Point of Contact: B. Red (NASA Johnson)

NASA Priority: Improving Prediction of Climate Change (Science Mission Directorate)

#### Project Summary and Description should include:

- (a) the objectives,
- (b) relevance of those objectives to NASA priorities and objectives,
- (c) description of what is novel,
- (d) description of anticipated impact, and
- (e) short description of technical approach.

#### Budget Summary and Justification:

Should include sufficient details that your Chief Research Officer will be able to confirm that you are requesting appropriate, reasonable, and allowable fund. Include personnel and work effort.

## **Section 2. More Information**

Cost Sharing: Not required.

Notice of Intent (NOI) to Propose: Not required.

Full Proposal: Must be submitted by MS NASA EPSCoR Director through UM to NASA.

Proposed Flights: The proposer’s organization will directly purchase the proposed flight(s) on a currently available U.S. commercial vehicle. The proposer is limited to using one (1) flight provider in one (1) vehicle class. The associated maximum number of allowed flights for each vehicle is detailed in Table 1. The proposer is responsible for choosing a vehicle which best meets their needs. However, the proposal shall only utilize vehicles whose providers have conclusively demonstrated successful flight(s) – test flights or commercial flights that were launched and recovered successfully with payload intact and have achieved the minimum flight capabilities.

**Table 1. Minimum Demonstrated Flight Capabilities of Eligible Vehicle Classes.**

Vehicle Class	Sub Class	Minimum Demonstrated Flight Capabilities	Allowable Flights
Rocket-Powered Vehicles	Suborbital Rocket	Minimum altitude of 80 km above Mean Sea Level (MSL)	1
	Rocket-Powered Lander Vehicle	Controlled descent and controlled vertical landing of a free-flying vehicle using a propulsion system of a class that can operate in a vacuum	1*
High-Altitude Balloons		Minimum altitude of 30 km above MSL	1
Aircraft Following Reduced-Gravity Flight Profiles		No minimum requirement	Up to 4

\* For Rocket-Powered Lander Vehicles, one flight may include precursor shakedown/tethered testing.

*Note: Proposals may include flights to lower altitudes, however, the minimum demonstrated flight capability requirements for the vehicle are still applicable.*

Proposers should not include confidential information that they don’t want to be seen by CROs and their designated white paper reviewers at the four MRC institutions.

### **Section 3. Recent NASA EPSCoR Awards to Mississippi**

EPSCoR 2017/80NSSC17M0038: 100K

UM/Dr. Ahmed Al-Ostaz in collaboration with UM/Aleander Cheng and NASA/Marshall Space Flight Center: “Utilizing ISS as a Test Bed to Validate the Performance of Nano-Enhanced Polymers Subjected to Atomic Oxygen and/or Hypervelocity Impact.”

EPSCoR 2019/80NSSC19M0013: \$100K

UM/Patrick Curtis in collaboration with UM/Dr. Nathan Murray and NASA/Science Mission Directorate and Human Exploration and Operations Mission Directorate: “Assessment of Whole Genome Fitness of Bacteria under Microgravity.”

EPSCoR 2021: \$100K

UM/Dr. Likun Zhang in collaboration with UM/Dr. Nathan Murray and NASA/Science Mission Directorate and Space Technology Mission Directorate: “Acoustic Tractor Beams to Manipulate Fluids in Reduced Gravity.”

## **Section 4. NASA EPSCoR Program Overview**

### **4.A. BRIEF DESCRIPTION OF NASA EPSCoR**

The National Aeronautics and Space Administration (NASA) Office of Education, in cooperation with NASA's Aeronautics Research Mission Directorate (ARMD), Human Exploration & Operations Mission Directorate (HEOMD), Science Mission Directorates (SMD), the Space Technology Mission Directorate (STMD), and NASA's ten centers (including JPL), 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 NASA's strategic research and technology development priorities and contribute to the overall research infrastructure, science and technology capabilities, higher education, and economic development of the jurisdiction.

### **4.B. EPSCoR BACKGROUND**

Public Law 102-588, 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. 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-reviewed competition.

The specific objectives of NASA EPSCoR are to:

- 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 among 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.