

MISSOURI NSF EXPERIMENTAL PROGRAM TO STIMULATE COMPETITIVE RESEARCH (EPSCoR)

***REQUEST FOR PROPOSALS***

**The Missouri Transect Seed Funding: Data Visualization**

Submission Deadlines:

Date of Announcement: September 6, 2016  
Intent to Submit Form: September 23, 2016  
Final Proposal: October 21, 2016

Anticipated Period of Performance:

January 3, 2017 – December 29, 2017



## **Program Name**

The Missouri Transect Seed Funding

## **Project Director**

Missouri EPSCoR Office  
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<https://missouriepscor.org/>

## **INTRODUCTION**

### **Data Visualization**

The Missouri Transect is a five-year project building research and education infrastructure, knowledge, and collaborations across Missouri. The research and education activities from the effort are generating large data sets spanning plant sciences, remote sensing and imaging, atmospheric and environmental sciences, and the social sciences. Knowledge dissemination resulting from these activities is a central goal of the Missouri Transect mission, however, these complex, multi-scale, and multidimensional data sets are inherently difficult for both scientists and the broader public to summarize and visualize. The ability to analyze data, spot patterns, and extract useful information from complex data sets are becoming essential skills for full workforce participation, public engagement, and decision-making in the 21st century. Therefore, the Missouri Transect is embracing the challenge of bringing Big Data into classrooms and public spaces by supporting the development and testing of methods that facilitate active inquiry into large, authentic data sets. Such methods will elevate public data literacy and data-using skills to increase understanding that will ultimately inform decision-making about the impacts of climate change on state agriculture, native plants, green spaces and communities.

This RFP seeks to address the question: What are the best ways to extract and condense useable information from Missouri Transect data sets that engage and inform Missouri citizens? Seed funds are available for innovative projects addressing this question. Preference will be given to projects designed to engage dual audiences: (1) the public-at-large to crowdsource the development of

impactful visualizations through hackathons, workshops, or other venues, and (2) teachers and pre-collegiate and college students to access and learn to work with high quality big data in the classroom to produce insights from the data sets. Seed fund awardees are expected to participate in the activities of the Missouri Transect and to strongly integrate with current project team members.

Proposals should address data distillation and visualization challenges using data available through the Missouri Transect, including time-series plant growth data, geospatial data (e.g. Doppler radar, crop plot-level digital phenotypes), survey data, etc. Investigators are expected to conduct research that creates and evaluates interface strategies and visualization tools that bridge the Transect's Big Data and cyberinfrastructure with public science education, especially in public learning environments such as the new GROW exhibit at the Saint Louis Science Center in which the Missouri Transect has invested, and in STEM classrooms across the state. The goal is for teachers, students and the public to develop the critical skills needed to extract meaning from complex data to better prepare themselves for our data-rich world.

### **Source of Funds**

The Missouri Transect Seed Funding is part of the NSF EPSCoR Track 1 Research Infrastructure Improvement grant *The Missouri Transect: Climate, Plants and Community* (IIA-1355406).

### **Eligibility**

Individuals, independent researchers, and educators at accredited academic institutions and research institutions in Missouri are eligible to apply.

Only projects with research and/or education in areas related to the Missouri Transect's focus on the effects of climate variability on plants and communities are eligible for Seed Funding. The Strategic Plan for the Missouri Transect can be found at <https://missouriepscor.org/about/strategic-plan>.

### **Award Amount and Duration**

The total project budget should be a maximum of \$50,000 in direct costs over a span of 12 months.

## Application Procedure

Letters of intent and proposals must adhere to the following guidelines or risk being returned without review:

1. **The Intent to Submit Form is due by 5:00 PM Friday, September 23, 2016**, to the Missouri EPSCoR Project Director. The Intent to Submit Form can be found at the end of this RFP. Please include:
  - The planned title of the proposal;
  - A brief description (less than 250 words) of the research/education that will be proposed for funding, including its relationship the Missouri Transect and significance/impact.
  - Name and contact information for the PI and co-PIs.

The Intent to Submit Form should be submitted as a single PDF.

To be considered for Seed Funding, the PDF (prepared as described above) should be attached to a single email message sent to [epscor@missouri.edu](mailto:epscor@missouri.edu) by the due date. The Missouri EPSCoR Project Director will notify proposers whose projects do not the goals of this seed funding project.

2. **Submit a Full Proposal by 5:00 PM Friday, October 21, 2016.** Prepare the proposal in accordance with the guidelines below.
  - a. Summary.
  - b. Goals, objectives and outcomes that can be accomplished in the time requested.
  - c. The Research Plan must be no more than 5 single-spaced pages at 12 pt Arial or Times New Roman font with one inch margins throughout. The research plan should include Specific Aims, Background and Significance, Preliminary studies (if any), and Approach.
  - d. References cited.
  - e. Institutional resources available to support completion of the project must be described.
  - f. Budget using the Missouri Transect Budget Form that appears at the end of this document.

The Seed Funding budget **should**:

- Support activities and outcomes that can be accomplished in the time requested.
- Only include items that directly support the PI or Co-PIs proposed project.

- Be followed by a budget justification of up to 2 pages in length.
- Be followed by a 1-page timeline with milestones for completing the scope of work and expending the funds requested.

The Seed Funding budget **should NOT**:

- Exceed \$50,000 in direct costs.
  - Include any indirect costs. (F&A will be added when a proposal is awarded.)
  - Include more than 1 month of salary for the PI or Co-PIs.
- g. The proposal should be accompanied by a statement from the Principal Investigator that explains his/her current and pending support and if there is significant overlap between the proposed Seed Funding request and any current or pending support.
- h. Signature page to include the signatures of the PI, co-PIs and the Office of Sponsored Programs

### Proposal Submission

The proposal must be prepared as described in number 2 above and be submitted as a single PDF. A signature from the PI's sponsored programs office is required. ***Proposals not signed by the PI's sponsored programs office will NOT be accepted.*** The PDF should be submitted electronically as an email attachment sent by the PI's institutional research office. This email should be sent to [epscor@missouri.edu](mailto:epscor@missouri.edu) by **5:00 PM Friday, October 21, 2016**.

### Review Criteria

The Missouri Transect's Leadership Team will solicit reviews of proposals from peers with expertise in the area of the proposed project. In reviewing proposals, the Missouri Transect will use the general merit review criteria established by the National Science Board. These are discussed in the *Proposal and Award Policies and Procedures Guide*, part 1: *Grant Proposals Guide (GPG), NSF 15-1* and listed below. In responding to the **Broader Impacts** criterion, reviewers will be asked to place special emphasis on the likelihood that the proposed project will enhance the research competitiveness of the PI/co-PIs and how it contributes to the Missouri Transect's major initiative to model and predict (1) short- and long-term trends in temperature and precipitation at the regional and local levels; (2) the effects of these trends on the productivity of Missouri's native flora and agricultural crops; and (3) how different stakeholder communities are likely to respond to these changes.

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

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

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

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

### **General Conditions of the Award**

If a proposal is selected for funding, the Missouri EPSCoR Project Director reserves the right to negotiate the budget and the term of the award.

During the term of the award and for five years after the end date, the Principal Investigator must inform the Missouri EPSCoR Project Director of:

- Any proposals submitted and any awards received as a result of the award. Information provided should include the title of the proposal or award, the funding agency, the amount of the proposal or award, and its duration.
- Changes to the Principal Investigator's contact information.

Missouri EPSCoR must comply with NSF EPSCoR reporting requirements (NSF 08-587). Therefore, each Principal Investigator awarded Missouri Transect Seed Funding and their students, faculty and staff should create an individual reporting account on the Missouri EPSCoR Reporting site (<https://reporting.missouriepscor.org/missouri/>). Information to be reported will include demographics on all project participants, proposals submitted and funded, publications, presentations, patents, degrees granted, and research outcomes. Missouri EPSCoR will request information from award recipients with compliance expected within 30 days of the request.

Any publication resulting from the award must include the following statement of acknowledgment: *This research is based upon work supported by the National Science Foundation under award no. IIA-1355406.*

The Principal Investigator will be required to attend the Missouri Transect Annual Meeting in 2017 (date and location TBA).

### **Contact Information**

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Program Administrator  
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### **Template for Intent to Submit Form**

See page 8 or Word Form.

### **Budget Form**

See Excel Form.



**Missouri EPSCoR Seed Funding Intent to Submit Form**

<i>Proposal Title:</i>
<i>Project Summary (250 word limit)</i>

***Principal Investigator Contact Information***

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Name:

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Title:

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Department:

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Institution:

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Address:

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Telephone:

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Fax:

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Email:

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***Co-Principal Investigator Contact Information***

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Name:

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Title:

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Department:

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Institution:

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Address:

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Telephone:

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Fax:

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Email:

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***Co-Principal Investigator Contact Information***

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Name:

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Title:

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Department:

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