



NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

NSF 16-031

Dear Colleague Letter: Leveraging GLOBE to Increase Student Engagement and Diversity

December 31, 2015

Dear Colleague:

The Global Learning and Observations to Benefit the Environment (GLOBE) program (www.globe.gov/) is an international science and education program providing students, educators, and the public with the opportunity to participate in protocol-driven data collection and the scientific process, while also contributing meaningfully to our understanding of the Earth system and global environment. Now entering its twentieth year of activity, GLOBE is an effective model for using inquiry-based approaches to strengthen science, technology, engineering, and mathematics (STEM) education. GLOBE now operates in one hundred and fifteen countries worldwide; in the United States, GLOBE implementation is currently overseen by one hundred and twenty-seven Partners located in forty-five states and two U.S. Territories. The international dimensions of the GLOBE program create a rich environment for students, educators, and scientists to engage with a culturally diverse community and participate in scientific exchanges regarding global environmental challenges. Since its inception, GLOBE has served more than twenty-eight thousand schools and more than twenty-three thousand teachers, contributing more than one hundred and thirty million measurements to a shared data base that is used by both the scientific community for research and by students for their own research projects.

Recent improvements to the technological infrastructure that underpins GLOBE program activities have opened up new opportunities to expand the reach of GLOBE within the United States. Although GLOBE has been implemented primarily within formal education settings, it is well-poised to reach a much larger informal education audience and support public participation in STEM research. Increasing the footprint of GLOBE operations would increase the number of students and citizen scientists being engaged in authentic environmental research activities, global observation campaigns, peer-to-peer collaborations, and virtual international science fairs using GLOBE-generated data. NSF is particularly interested in expanding GLOBE operations within highly diverse communities or within schools and informal learning programs that serve traditionally underserved and underrepresented populations in the STEM disciplines, including women, minorities, and persons with disabilities, in order to achieve its strategic goals for broadening participation. Thus, the Directorates for Geosciences (GEO) and Education and Human Resources (EHR) are partnering with GLOBE to build capacity for engagement of diverse student populations in the environmental sciences and geosciences and to evaluate GLOBE's impacts on student attitudes and learning. Such integration of research and education supports one of NSF's major strategic priorities (http://www.nsf.gov/about/performance/strategic_plan.jsp).

Capitalizing on these opportunities to build capacity for GLOBE will require: (1) targeted training of educators in the use of GLOBE measurement protocols, data entry systems, and visualization tools; (2) implementation and on-going support for educators and students in formal and informal educational settings that use GLOBE resources; and, (3) documenting through evaluation and assessment the

impacts of GLOBE activities on student attitudes toward STEM and STEM learning outcomes, particularly among traditionally underrepresented student groups, and on the impact of the GLOBE databases on scientific research. Successful projects are expected to both build on and contribute to the evidence base regarding effective STEM learning and learning environments.

In 2016, NSF is initiating an activity to broaden participation in the sciences: Inclusion across the Nation of Communities of Learners that have been Underrepresented for Diversity in Engineering and Science (INCLUDES). As an INCLUDES pilot activity, NSF invites submission of funding requests that will increase the capacity for using, as well as use of, the extensive resources of the GLOBE program, by addressing the requirements identified above. All submissions should follow the guidelines provided in the NSF Grant Proposal Guide (GPG) (see http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg).

Full proposals submitted in response to this DCL must be identified by starting the proposal title with the term: "INCLUDES - GLOBE (NSF 16-031): *(Insert Project Title Here)*".

Proposers may submit relevant requests through any of the following mechanisms:

- New proposals submitted for consideration by either the Discovery Research Pre K-12 (DRK-12) program or Advancing Informal STEM Learning (AISL) program, managed within the EHR Directorate.
 - The DRK-12 solicitation [NSF 15-592] is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=500047. The next deadline for DRK-12 proposals is December 5, 2016.
 - The A ISL solicitation [NSF 15-593] is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504793. The next deadline for A ISL proposals is November 8, 2016.
- Requests for supplemental funding for awards previously funded through the DRK-12 program that will remain active through the end of Fiscal Year 2016. Supplemental proposals must enhance existing projects by incorporating or exploring the concepts described in this DCL, while demonstrating how the proposed work is related to the active project. Requests for supplemental funding must clearly indicate in the first sentence of the Summary of Proposed Work that the request is being submitted in response to DCL NSF 16-031.
- The Early-concept Grants for Exploratory Research (EAGER) proposals submitted for consideration by the Directorate for Geosciences, Office of the Assistant Director. The EAGER funding mechanism may be used to support exploratory work in its early stages on untested, but potentially transformative, research ideas or approaches. This work may be considered especially "high risk-high payoff" in the sense that it, for example, involves radically different approaches, applies new expertise, or engages novel disciplinary or interdisciplinary perspectives. The EAGER mechanism should not be used for projects that are appropriate for submission as "regular" (i.e., non-EAGER) NSF proposals. Prospective Principal Investigators seeking to use this mechanism must contact the program director overseeing GEO's related activities, Dr. Lina Patino, prior to submission of an EAGER proposal. This will aid in determining the appropriateness of the work for consideration under the EAGER mechanism. EAGER proposals should be prepared following the guidelines of GPG Section 11.D.2. To be considered for funding in Fiscal Year 2016, EAGER proposals must be submitted to NSF by April 1, 2016.

Requests submitted in response to this DCL are most likely to be successful if the project team includes someone who has documentable experience with GLOBE resources and operations. The GLOBE Implementation Office will be offering two GLOBE "Boot Camps" during March and April, 2016, for prospective Principal Investigators who are interested in learning more about GLOBE. Details regarding

the GLOBE Boot Camps are available at: <http://www.globe.gov/get-trained/workshops>.

Principal Investigators considering submission of a proposal or supplemental funding request in response to this opportunity are strongly encouraged to contact Lina Patino (lpatino@nsf.gov; 703-292-5047) or Dave Campbell (dcampbel@nsf.gov; 703-292-5093) for further guidance.

Sincerely,

Joan Ferrini-Mundy
Assistant Director, Education and Human Resources

Roger Wakimoto
Assistant Director, Geosciences