



National Science Foundation
4201 Wilson Boulevard
Arlington, Virginia 22230

NSF 12-024

Dear Colleague Letter - EarthCube: The Next Steps

Date: December 9, 2011

Subject: Next steps in realizing *EarthCube*

EarthCube is a community driven activity aimed at creating and nurturing transformative approaches to integrated data management infrastructures across the Geosciences. The Geosciences Directorate (GEO) and the Office of Cyberinfrastructure (OCI) have established a partnership to address the multifaceted challenges of modern, data-intensive science and education. The expected outcome is an environment where obstacles associated with low adoption thresholds and new capabilities are overcome so as to greatly increase the productivity and capability of researchers and educators working at the frontiers of Earth system science.

A "Dear Colleague Letter" (NSF 11-065) initiated EarthCube (<http://www.nsf.gov/pubs/2011/nsf11065/nsf11065.jsp?org=NSF>) in June 2011, followed by a Charrette held Nov. 1-4, 2011. The Charrette provided the opportunity for the community to come together (on-site and virtually) to clarify the long-term breadth and scope of EarthCube and identify potential new science that could be accomplished within a future framework for EarthCube. Information on the Charrette and its outcomes is available at the EarthCube website (<http://earthcube.ning.com>). Community dialogue has also been facilitated by webinar presentations (<http://www.nsf.gov/geo/earthcube/>). Dialogue continues in order to hone a strategic framework for EarthCube and encourage convergence of broad-based collaborations within the geosciences and beyond.

At this point in the process, NSF will accept EAGER¹ proposals or supplemental funding requests that are consistent with the guidance provided by the Charrette, this letter and supplemental guidance (<http://www.nsf.gov/geo/earthcube/eagerguidance.jsp>). Submissions must involve one of these three categories:

- Advance the study of, and planning for, a **Strategic Organizational Framework for EarthCube**. All elements of the framework presented in the paper EarthCube Guidance for the Community (NSF 11-085) (<http://www.nsf.gov/pubs/2011/nsf11085/nsf11085.pdf>) need to be addressed in proposed activities.
- Develop one or more **New Capabilities** that leverage existing technologies and practices and would significantly improve the productivity and capabilities of researchers and educators across all of the geosciences and that can be directly connected to the EarthCube vision. New capabilities may include combining current assets in highly innovative new ways that would advance the application of existing solutions to profoundly improve the capabilities of EarthCube. The submission should describe how the new capability differs from those identified at the Charrette (<http://earthcube.ning.com/page/capabilities>).
- Make significant progress on achieving one or more **Critical Milestones** related to the identified needed capabilities for the EarthCube vision. Milestones are defined as collaborative activities that will advance a science goal that has broad applicability to the geosciences. While some example milestones were identified at the Charrette, and are listed on the capabilities website (<http://earthcube.ning.com/page/capabilities>), others remain to be identified. It is expected that milestones will leverage existing technology and practices when possible.

Prior to submitting an EAGER proposal or a supplemental funding request related to EarthCube, a two-page summary must be submitted by email to earthcube@nsf.gov. The summary should (1) identify which of the above three categories the proposed activity would address; (2) explain the scientific motivation for the proposed effort; (3) describe the resultant advances that would be enabled by the undertaking, and (4) identify the members of the team. NSF will review the summaries and provide additional guidance to the submitting team. EAGER proposals or supplemental funding requests for EarthCube that do not contain the required predated email summary and a response from the NSF EarthCube team will be returned without review.

This ambitious EarthCube activity is not a proper venue for proposals for which there are existing programs or mechanisms. In particular, proposals of the following types are not appropriate for submission through the EarthCube EAGER mechanism:

- Projects in which the scientific or cyberinfrastructure advances lie primarily within the scope of one sub-domain of Geoscience and are unlikely to substantially benefit other sub-domains;
- Projects that are sufficiently aligned with existing programs so as to receive an appropriate evaluation through external review.

EarthCube continues to focus on facilitating effective partnerships beyond those present prior to its inception. Thus, proposals should reflect a new breadth and depth of partnerships and collaborations poised to overcome the most confrontational barriers to the advancement of geosciences research and education. Consistent with EarthCube's open dialogue process, proposals must demonstrate substantial outreach, dissemination, and broad community inclusion during the award period. It is also expected that cyberinfrastructure projects will be closely tied to high priority broadly applicable capabilities and milestones and be closely connected to research needs that span the geosciences.

Continued community dialog and inclusiveness in the EarthCube design is of paramount importance. **The next community event, currently planned for late Spring 2012, will focus on enabling constructive discussions towards convergence of ideas and approaches. NSF will only support activities that will best prepare the community for this next step.**

Sincerely,

Tim Killeen, Assistant Director, Directorate for Geosciences (GEO)

Alan Blatecky, Head, Office of Cyberinfrastructure (OCI)

¹Information on Early-concept Grants for Exploratory Research (EAGER) proposals can be found at http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/gpg_2.jsp#IID2