



Update on The EarthCube Initiative

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EarthCube is a U. S. National Science Foundation program that began in 2011 to spur development of cyberinfrastructure to transform how data-intensive geoscience research is conducted. The goal is to improve support for science workflows, especially in terms of data discovery, access, analysis and visualization, for individual domain scientists and multidisciplinary teams. The long-term vision is to develop capabilities to more efficiently and deeply tackle research question in complex, dynamic Earth System processes, building out from existing infrastructure, developing standards, and educating geoscientists on their adoption.

As a community-driven and community-governed effort, and with support from the NSF Geoscience and Computer and Information Science and Engineering Directorates, the program spent much of its initial years building a community, exploring ways to address these goals, building demonstrating components, and refining our understanding of science workflows across geoscience domains. More than 60 projects have been supported. During this time parallel developments in other NSF directorates, Data Repositories, and elsewhere (e.g., the ESIP community) have raised general awareness of geosciences data needs and best practices, illustrating the importance of standards and interoperability principles. A good example is the FAIR initiative, where data is findable, accessible, interoperable and reusable. In response, the EarthCube Leadership Council, in consultation with stakeholders, has outlined 3 priority activities for 2018 and beyond: (a) Scientist Engagement/Science Advancement; (b) Registries for Resource Integration and Reuse; and (c) Scientific Workflow and Data Support (in “Workbench” environments).

In partnership with upcoming NSF Geoscience directorate domain science workshops, and with hopes to partner with the new Foundation-wide HDR initiative (Harnessing the Data Revolution), EarthCube has a goal of being a central hub to support geoscience and geoinformatics community data needs, to work with other like entities, to engage scientists in order to learn about and support their data needs, to drive development and implementation of standards through registries and aligned data facilities, and to lower the barrier for scientists to participate in data-intensive projects in all the forms. Specific examples of current efforts will be discussed.