

Workshop: [Earth Education for Sustainable Societies](#)

October 14-16, 2019

Northfield, MN

From the hyper-local to global: UNAVCO's vision for sustainability in earth education

UNAVCO, a non-profit university consortium, operates the NSF's Geodetic Facility for the Advancement of Geoscience (GAGE). Beth Bartel, a UNAVCO Outreach Specialist, will be attending the Earth Education for Sustainable Societies workshop on behalf of UNAVCO.

Our Vision

Earth Education for Sustainable Societies should be interwoven within the broader earth education curriculum. There is much value in having an integrated program rather than stand-alone activities or curriculum. A sustainable society is one in which people have the basic scientific and social understanding to make educated decisions regarding activities that impact the earth system and how the earth system in turn affects human societies.

It is critical that sustainability is rooted in local communities. Individuals are more engaged in earth system science education when they see the relevance of and to their own community. Materials and resources about the earth should be scientifically rigorous and, very importantly, rooted in "the local" and then connected to the regional and global importance. Resources must be accessible, meaning that they are understandable and relevant to a broad population with diverse backgrounds and experiences. Tying earth science to societal issues enables students of diverse backgrounds to see how the science does (and/or has the potential to) affect their communities.

We also see sustainability and resilience as tightly intertwined and should be considered together. Efforts to increase resilience to punctuated events (i.e., hazard events) should take into account environmental aspects during the planning, preparing, and mitigation process. Planning for resilience is an important element of the overall arch of sustainability.

Potential actionable steps

- K-12
 - Sustainability is typically addressed in environmental courses (if at all); work to have better earth sustainability aspects in AP Environmental Science.
 - NGSS does a good job of representing earth science in a balance with the other sciences. Unfortunately, few science programs actually give earth science the representation it is due. We should work to have science programming better match the NGSS's earth emphasis.
 - Move earth science courses to be culminating, not remedial high school classes. Work to design and promote capstone high school science courses that synthesize science and social studies learning into locally-oriented earth and environmental sustainability courses.
- Continue curriculum propagation that has strong connections between societal questions/issues and science learning (ex. InTeGrate, GETSI).

- Much great work has been piloted with the EarthConnections INCLUDES project. Sustainability education should look toward the successes and challenges of EarthConnections to identify how to engage formal education venues, informal partners, and local community members. A potential key to success is to look at developing hyper-local pilots where the topic of sustainability is tied directly to the local community.

More about UNAVCO

UNAVCO's Education and Community Engagement program is strongly committed to framing geoscience learning in the context of sustainable societal decisions and for broadening the population of people involved in earth science learning. We help make connections within the geodesy/geophysics community to better inform how science findings can be directly applied to societal decisions. We can also work with the same community to potentially shape how some elements of research are pursued to better serve sustainability and educational goals.

Specific UNAVCO experience that may serve future sustainability education:

- Curriculum development and instructor professional development related to science learning contextualized by societal issues (GETSI)
- Student internship programs that give students from groups underrepresented in science support to pursue earth science research and research skills preparation in a well-mentored environment (RESESS; Geo-Launchpad)
- Geohazards science and resilience professional development for educators (CEETEP; ANGLE)
- Earthquake science- and preparedness-focused museum exhibit
- Engaging multiple communities for new collaborations in earth education (EarthConnections)
- Broad staff expertise including sustainability, geology, geophysics, atmospheric sciences, instructional design, and journalism/communication.