

Using Virtual Fieldwork, EarthScope and Critical Zone Observatories to Nurture Public Understandings of the Most Important Earth System Science Ideas

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Decades of science education research costing hundreds of millions of dollars have made no discernable improvement in the outcomes of school-based science education writ large. It is unlikely that this presentation will either, but it will identify possible points of departure from standard practice that may offer promise. Large science projects that are national in scope, connect a range of disciplines, and employ systems perspectives to their objects of study provide opportunity for both enhancement of, and departure from, traditional educational practice.

This presentation will begin by raising the question of what ideas and questions are most important to understand about Earth system science; address the fundamental mismatch between what research says about how people learn and the basic structures of secondary and tertiary education; and, finally describe how the in-depth study of place that employs strategies and data from projects like the Critical Zone Observatory Network and EarthScope might lead to more effective educational approaches.

Virtual Fieldwork Experiences (VFEs) are multi-media representations of actual field sites. The driving question for the work is, “Why does this place look the way it does?” While VFEs may stand in for actual field experiences, they are more intended to catalyze fieldwork and serve as a way to document and share work in the field. Through teacher-student collaborations, learners engage in documenting the close study of their local environment in a way that facilitates sharing with interested others, and allows for years-long interdisciplinary investigation.

