

## Responding to Environmental Change: Research Collaborations, Integrated Data Systems, and Deep Mapping

*Wednesday, 21 March 2018 14:30 (30 minutes)*

In 2016, Indiana University created a multi-campus interdisciplinary team and charged it to understand how climate change has affected and will affect the citizens of Indiana. Six interdisciplinary research clusters are examining the biologic, environmental, and human and cultural dimensions of climate change. The Polis Center is developing a distributed spatial data platform to allow the research and findings to be integrated and visualized within and across the geography of the state. The aim is to produce a deep map of the data, both qualitative and quantitative, that allows researchers to examine problems within a spatio-temporal framework that scales easily from small units such as neighborhoods (or smaller) to the state, as well as to any number of intermediate geographies. Tools will exist within the platform to permit easier transformation, management, and visualization of the data, with the aim to make data available in as near real-time fashion as possible. More importantly, the deep map that results must be flexible, supporting different perspectives and capable of managing both expert and native knowledge, the latter contributed by citizen scientists who will be an important part of the initiative.

The presentation will outline the requirements for the integrated data spatial data platform as well as the resulting system schema. It will suggest how technologies such as GIS may be linked with other non-spatial modules to construct a dynamic interdisciplinary virtual research environment for experts as well as a system that invites volunteered information and citizen participation. It will outline as well the schema for producing on-the-fly advanced visualizations for purposes of research and public consumption. Finally, the presentation will invite both ideas and collaboration from attendees at the conference. Ultimately, grand challenges are collaborative ventures, and this presentation will seek to model how such collaborations may cross continents and not simply disciplines.

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