

## ABSTRACT

### Visualizing Terrestrial and Aquatic Systems in 3D

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The need for better visualization tools for environmental science is well documented, and the Visualization for Terrestrial and Aquatic Systems project (VISTAS) aims to both help scientists produce effective environmental science visualizations and to determine which visualizations are most helpful to scientists and their stakeholders. VISTAS is an interdisciplinary project involving computer, environmental, and social scientists. In this invited paper for IEEE Intelligent Systems Magazine, we present an overview of several VISTAS applications that are also being presented in a poster presentation for the IEEE VIS 2014 meeting in Paris, France, November 9-14, 2014 (<http://ieevis.org/>). Specifically, scientists at the EPA Western Ecology Division and Oregon State University (OSU) are using VISTAS software to create spatiotemporal animations of multi-gigabyte geospatial datasets that previously have been difficult to understand scientifically and, equally important, to communicate to stakeholders and policy makers. In an iterative procedure, social scientists and computer scientists on the VISTAS team work together to interview the EPA and OSU scientists and, based on feedback about what does or does not work, they then make further improvements to the software. The process is intended to maximize VISTAS' applicability to trans-disciplinary problems involving a variety of land managers, stakeholders and community decision-makers faced with balancing environmental, economic and social needs.