

MU researchers receive NSF award to probe the atmosphere - *virtually*

At last count, 87.1 million people were gaming online in the U.S., most of student age. While the majority of the 2,000-plus online games are designed primarily for entertainment, there are many that use this technology as effective supplements to traditional learning. Some include sophisticated visualizations that attempt to synthetically simulate real-world environments, but only a handful immerse the users in real data for an authentic experience, and these visualizations are generally limited to the use of canned data targeted for specific learning scenarios.

However, 3-D visualizations of real-time atmospheric data, including gridded output from weather models, are commonplace in the meteorology community. With that in mind, three Millersville researchers set out with the goal to develop a virtual experience that will allow students to immerse themselves and to navigate within real and current data while being guided by a tiered instructional design strategy. The researchers envision that this will lead to enhanced learning and discovery.

Drs. Gary Zoppetti, computer science and Sepideh Yalda and Richard Clark, both from earth sciences, recently received \$350,000 from the National Science Foundation Division of Information and Intelligent Systems-Advanced Learning Technologies Program (NSF-IIS-ALT) to develop a "plug-in," that will provide a student with the ability to explore real-time data interactively at the controls of their personal virtual platform. The project is called "Geosciences Probe of Discovery."

"Working with a team of undergraduate students, we will collaborate on the development of a software module that implements an interactive, intuitive interface called the "GEOpod," explained Clark. The GEOpod allows students to probe a 3-D immersion world of authentic geophysical data and use virtual devices to collect data and record observations, while guided by an instructional approach that can be customized for individual learners."

The GEOpod team plans to build and release successively more sophisticated and visually enticing beta-versions of the GEOpod, culminating with the global release of a plug-in that can be installed with an existing open-source application called the Integrated Data Viewer (IDV), developed by software engineers at the Unidata Program Center in Boulder, Colo. IDV is currently being used for 2-D and 3-D visualization of the atmosphere by thousands of students at the 100-plus U.S. universities that offer programs in atmospheric and related sciences, and is making inroads at universities and operational meteorology centers throughout the world.