

# See For Yourself



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Frank Witmer

It's not enough for EPSCoR to gather and interpret data; the next step is presenting it to the public. That's where EPSCoR visualization efforts come in.

"The idea is to really use visualization as a tool to convey science to a broad range of people," said UAA Assistant Professor of Computer Science and Engineering Frank Witmer. "To fellow scientists, to stakeholders in the community, and to students via education and outreach."

Witmer is leading EPSCoR visualization work at UAA, centered on the campus' Planetarium and Visualization Theater (PVT). One major project is a high-resolution 3-D model of the Kenai River watershed, which contains data layers from the 1950s, 1980s and 2013 to illustrate changes over time - from receding glaciers to advancing development. "It's one thing to read an article or even see a movie about these sorts of landscape-scale environmental changes, but to be in the immersive environment of the planetarium really takes it to the next level."

Witmer is also continuing work on SalmonSim, an immersive salmon visualization program developed under an EPSCoR contract in Idaho before recently being transferred to Alaskan researchers. SalmonSim consists of virtual versions of the Russian River and the mouth of the Kenai River stocked with salmon. Through a set of interactive scenes, users can see various parts of the salmon life cycle, change aspects of the environment to see how it affects the fish, and even pilot a salmon upstream to spawn.

Witmer said SalmonSim is currently used mainly for student outreach, and a major goal is to combine the simulation and landscape model into a presentation for school groups. The CIS Group is also working with the Alaska Department of Fish and Game and Kenai watershed organizations to create a version of SalmonSim incorporating the Kenai Peninsula's many overlapping fish regulations and jurisdictions. "We'd like to be able to create this scene that has real value to managers and users," Witmer said.

EPSCoR's visualization efforts in Fairbanks center on Decision Theater North (DTN), a conference room retrofitted with seven high-definition monitors and connected directly to UAF computing and storage. The new

venue is designed to use visualizations to facilitate group decision-making.

"We can build on the capacity of the university to capture data to create visually stimulating packets of information to help people to understand the world around them," said Alaska EPSCoR Associate Project Director Pips Veazey, who is in charge of DTN. "What we hope Decision Theater North will do in the future is be a gathering space for different kinds of people to come together to talk about complex problems."

DTN has been open since fall 2015 and has hosted numerous events, including open houses, thesis defenses, and gatherings of officials such as meetings to develop a state entrepreneurship plan. EPSCoR has also championed the DTN through a two-day visualization workshop and visualization grants for researchers. Future plans include research into how the DTN facilitates team science; a collaboration with a decision theater in Washington D.C.; and community conservation sessions where researchers meet with managers and lawmakers.

"Scientists like to think that they get information out to policymakers but that doesn't magically happen, there needs to be a process for doing that," Veazey said. "Facilities like these can be that midpoint in the bridge between those two groups."



photo by Frank Witmer/UAA

An image of a Kenai Peninsula landscape in the UAA Planetarium and Visualization Theater.