debrief the experience. Also demonstrated is the use of distance learning technology to cultivate regional harmonization of response in a field in which preparedness is essential but practical exercises lacking.

Teaching data analysis using thin client technology for remote access
Robert Seidman, San Diego State University, USA; K. Michael Peddecord, San Diego State University, USA
This poster describes implementation and outcomes of using thin client technology to provide remote access in a data analysis course. All software applications run on the course server, so no downloading of data or software is required. Results from statistical analyses are transmitted to students' client machines. Students were able to launch applications and complete assignments from any location that had Internet access. In addition to 7/24 access, students were able to use software they did not own and large data files they did not have on their own computers. While they generally expressed satisfaction with this remote access capability, drawbacks included initial programming time and cost of the server software, lack of familiarity with operating in a networked environment, frustration with server-side disconnects or ISP interruptions, and occasional inability to print at home because the server software does not include all old printer drivers.

Multimedia Guide to Fractal Geometry
Vladimir Shlyk, Belarusian State Pedagogical University, Belarus
Fractal geometry has changed our view of natural processes and geometric forms. The Guide is a software kit supporting a university course on this science. It contains an introductory electronic textbook, annotated list of publications, favorite Internet links and provides facilities to run programs. One program of the project visualizes the mechanism of birth of classical and IFS fractals. A student can grow fractals by himself and explore their features by trying different generators and mappings. Another program demonstrates connection between the Mandelbrot and Julia sets. It throws a bridge from fractal geometry to nonlinear dynamics and chaos theory by showing different variants of behaviour inherent in underlying quadratic process. Having advantages over analogous programs, it is already being used at several universities. To create the most complete educational software on fractal geometry we would be pleased to collaborate with other specialists and enthusiasts.

Project-Based Learning + Multimedia: Adding Value to Students’ Education
Michael Simkins, Silicon Valley Network, USA; William R. Penuel, SRI International, USA
"Does technology really make a difference in student learning?" Definitely, according to the Challenge 2000 Multimedia Project, one of the original Technology Innovation Challenge Grants funded by the U.S. Department of Education. The Project has demonstrated significant educational results when technology investment includes teacher training, technical support staffing, and curriculum materials development. In a five-year evaluation of the $6.2 million project in California's Silicon Valley, SRI evaluators found that technology-using students surpassed their non-technology-using peers in developing some of the most critical skills for the new economy of the 21st century. These skill advantages included better communication, teamwork and problem-solving. Researchers also found important positive changes in teachers classroom practices that support a constructivist approach to learning. In addition, these same students equaled their non-technology-using peers in learning the basic skills measured in standardized tests. In short, students in technology-using classes not only "got the basics," they got more.

The Search for the Skunk Ape: An Information Literacy WebQuest
Charlotte Slater, The Walden Institute, USA; Pamela Sawallis, Florida Gulf Coast University, USA
A web-based instructional resource for distance and on-campus learners uses elements of goal based scenarios (Schank, 1994) and WebQuests (Dodge, 1997) to provide a "fun," story-based environment for learning information literacy skills. This project represents a partnership between instructional technology and library services at a state university.

Online Learning in a 3-D Robotics Workshop: The NASA ROVer Ranch
Stephanie Smith, NASA/LinCom, USA
The ROVer Ranch is an online environment based on NASA's mission as it relates to robotics engineering. Students are situated where they learn about robots and then build and run simulated robots in a 3-D virtual world. The robotics workshop has all the components to build a "soft" version of a robot and the tools needed to instruct the robot to complete its mission. Student engineers or teams select a mission, review the mission goals then design a robot with the appropriate attributes (power source, navigation planning, tools, etc.) based on the mission objectives. Once the robot is constructed, students plan a navigation path and then place the robot in the simulation to execute the mission. This simplified design and programming exercise is an interactive method to learn science and math skills both individually and in a team setting as students share their experience in journals and team message boards.