EVENTSCOPE: Discovering Mars with Internet-Based Virtual Environments

http://www.eventscope.org

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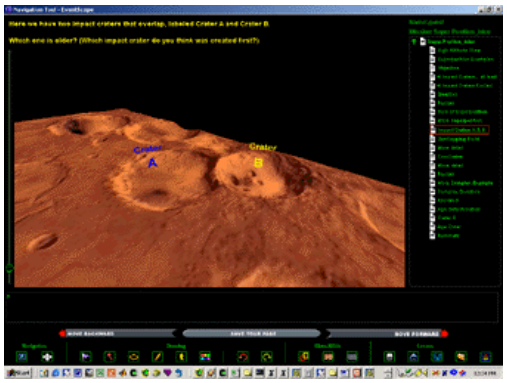
Telepresence is experiencing a place without physically being there. Telepresence interfaces receive information from robots or sensors in distant, hard to reach places. Scientists use telepresence to explore places that are inaccessible to human beings, such as Mars. However, the technology used on such missions is so complex that the missions themselves are as inaccessible to the public as the extreme environments being studied. Subsequently, design and engineering barriers have kept this vast resource off-limits to America's classrooms despite the Internet's widespread proliferation. Existing public telepresence interfaces either do not scale well to worldwide dissemination or do not fully engage school students.



EventScope is a telepresence interface that enables students to discover Mars. Through EventScope, students are free to explore photorealistic virtual environments (VEs) while working through standards-based curriculum authored and downloaded to school computers via the Internet. Students then carry out activities similar to those of real mission scientists and engineers.

EventScope integrates data from robotics missions to create 3-D models that replicate remote sites in photorealistic detail. These VEs are placed within computer-based activities created by EventScope's multidisciplinary team. Classrooms can download the VEs and their associated activities into a Java3D-based user interface. EventScope was designed from the ground up to be visually engaging. Students instantly understand EventScope's interface since its metaphors are based on those of familiar video games. The use of VEs gives students the uniquely personal and powerful experience of exploration. Downloading VEs also provides freedom to experience a remote site either during a mission or after the mission is completed. Furthermore, because they are exploring a virtual world, many students can simultaneously experience the same remote location.

Educators craft telepresence curriculum with an intuitive authoring tool. It creates interactive presentations based on a sequence of "telepresence pages" that comprise a complete activity.

EventScope has pilot tested three iterations of software and curriculum. Pilot schools include urban, suburban and rural as well as public, private, parochial and charter schools, and represent a cross-section of needs and circumstances. EventScope bridges the digital divide between wealthier and disadvantaged school districts. It helps young people discover an interest in science by giving them the opportunity to explore real remote locations of high scientific value. Through a combination of realistic VEs and standards-based educational curriculum, students learn hard science about Mars in an entertaining, memorable way.

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