

**Windows on Earth –  
Giving You the Astronaut's Experience  
in Museums and on the Web**

Visualization or Technology Demonstration

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Topic or Session Area – Museums & Education

Technology Requirements – Windows (I will supply my own machine.  
I can also supply my own projector if need be).

Abstract:



**Windows on Earth** enables museum and web visitors to explore Earth from the orbital perspective. It simulates the experience of being an astronaut on the International Space Station, looking down on Earth. It provides dynamic photo-realistic imagery, along with audio-commentary, animations, feature labels and data overlays – simulating the astronaut’s experience as closely as possible.

**Windows on Earth** is a **museum exhibit**, for ready integration with exhibits on Earth science and space exploration. It will be installed in the National Air & Space Museum, Boston Museum of Science, Saint Louis Science Center, and Montshire Museum. Other museums can purchase and install the exhibit, and join the WinEarth network.

**Windows on Earth** is also a **web site**, for public access to the simulator. It automatically tracks the International Space Station and dynamically shows the current view of Earth from the

ISS, with realistic colors, real-time clouds, and day/night transitions.

The **learning experiences** are highly interactive, enabling the visitor to explore around the world, click locations for background information, turn on and off overlays and engage in learning experiences, revealing Earth's processes as seen from space.

We have done extensive work with astronauts, scientists, graphic designers and software developers to make the experience as realistic as possible. Users feels like they are in space, at an altitude of 220 miles, with the Earth serenely floating by at 17,000 mph, just like the ISS. We carefully adjusted the colors, based on an astronaut's detailed review, continent by continent. We added clouds, atmospheric hazing and day/night transitions, based on real-time data and accurate simulations – all displayed on a high-resolution large screen monitor, mounted in an environment that looks like the inside of the Space Station. Overall, the experience transcends the technology to feel like you are in space, exploring Earth just as an astronaut would.

The development team includes experts in inquiry-based learning and Earth science education (TERC), Earth visualizations (GeoFusion), exhibit design (Jeff Kennedy Associates), web design (Suitable Systems), program evaluation (PERG) and the four partner museums (listed above). TERC's Center for Earth and Space Science Education provides overall leadership. It builds on an extensive base of prior work in Earth visualizations, including *Visualizing Earth* and *NASA ISS EarthKAM*, and promotes the *Revolution in Earth Science Education*. We will launch the web site and exhibit at the National Air and Space Museum in September 2007.