Students and astronauts use powerful new tool to explore Earth fom space

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Imagine being able, with a click of a mouse, to see the world, in all its beauty, just like astronauts on the International Space Station do.

That's exactly what will happen when Richard Garriott – a citizen astronaut and son of former astronaut Owen Garriott -- takes his trip to the International Space Station on October 12 aboard the Soyuz. He will be carrying with him special software – "Windows on Earth" -- developed by TERC (an educational non-profit) and the Association of Space Explorers to help him identify targets on the Earth to photograph for scientific research and educational exploration.

Anyone interested in seeing what Garriott will see can use the SAME software to simulate the views from the space station window by going to winearth.terc.edu. This software, funded by the National Science Foundation, was originally developed for use in museums and the web. It is currently installed at Boston's Museum of Science, the National Air and Space Museum, and St. Louis Science Center.

It has been adapted for use by astronauts because of its very realistic simulation of Earth as seen from space. (Usually the reverse is true – the technology is developed first for scientists and then adapted for public and educational use.)

Watching Earth Change over 35 Years

Richard Garriott's flight, and this software, offer an historic opportunity to see how Earth has changed over the 35 years since his father Owen, one of NASA's first scientist astronauts, flew on Skylab II in 1973.

"I am very excited to be using the TERC Windows on Earth software to aid in my Earth observation experiments. I can say with confidence that the tool will prove to be essential in helping me get the most out of my time on orbit, as well as give me and students the same extremely high quality presentation of what I will see out the window as I fly past at 17,210 miles per hour and an altitude of about 250 miles," Garriott said.

The Windows on Earth digital system

The Windows On Earth software at the heart of this Earth observation system, is a state-of-the-art technology that simulates the view of Earth as seen from the International Space Station. Visitors see the Earth in high-resolution, photo-realistic color and 3-D, passing by under them. They can explore where they wish, with sites of interest marked in many locations around the world, including animations of how various features were formed. The system includes clouds, night lights, and other data to make the experience as realistic and interactive as possible. Richard's photographs (and those of his father) will be integrated into the system, with each photo marked and clickable, on the Earth imagery.

"The ramifications for students and the public is profound," according to Dan Barstow, director of the Center for Science Teaching and Learning at TERC. "Their view of the Earth is no longer restricted to glossy photos in a book but they can actually see what is happening on Earth with a space-age perspective, and with it their understanding of Earth is transformed," he said.

Windows on Earth web site

In addition to the Windows on Earth simulator, the site also includes links to educational activities for use in schools, and by anyone interested in Earth and space exploration.

Source: TERC