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Virtual presence for mission visualization: computer game technology provides a new approach

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The concept of virtual presence for mission and planetary science visualization is to allow the public to "see" in space as if they were either riding aboard or standing next to an ESA/NASA spacecraft. Our approach to accomplishing this goal is to utilize and extend the same technology used by the computer gaming industry. With this technology, people would be able to immediately "look" in any direction from their virtual location and "zoom-in" at will. Whenever real data for their "view" exists it would be incorporated into the scene. Where data is missing, a high-fidelity simulation of the view would be generated to fill in the chosen field of view. The observer could also change the time of observation into the past or future. The potential for the application of this technology for the development of educational curricula is huge.

On the engineering side, all allowable spacecraft and environmental parameters that are being measured and sent to Earth would be immediately viewable as if looking at the dashboard of a car or an instrument panel of an aircraft. Historical information could also be displayed upon request.

This can revolutionize the way the general public and planetary scientific community views ESA/NASA missions and provides an educational context that is attractive to the younger generation. While conceptually using this technology is quite simple, the cross-discipline technical challenges are very demanding. This technology is currently under development and application at JPL to assist current missions in viewing their

data, communicating with the public and visualizing future mission plans. Real-time demonstrations of the technology described will be shown.