

Development of 3D interactive visual objects in the Scripps Institution of Oceanography's Visualization Center

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Within the last year scientists and educators at the Scripps Institution of Oceanography (SIO), the Birch Aquarium at Scripps and San Diego State University have collaborated with education specialists to develop 3D interactive graphic teaching modules for use in the classroom and in teacher workshops at the SIO Visualization center (<http://siovizcenter.ucsd.edu>). The unique aspect of the SIO Visualization center is that the center is designed around a 120 degree curved Panoram floor-to-ceiling screen (8'6" by 28'4") that immerses viewers in a virtual environment. The center is powered by an SGI 3400 Onyx computer that is more powerful, by an order of magnitude in both speed and memory, than typical base systems currently used for education and outreach presentations. This technology allows us to display multiple 3D data layers (e.g., seismicity, high resolution topography, seismic reflectivity, draped interferometric synthetic aperture radar (InSAR) images, etc.) simultaneously, render them in 3D stereo, and take a virtual flight through the data as dictated on the spot by the user. This system can also render snapshots, images and movies that are too big for other systems, and then export smaller size end-products to more commonly used computer systems. Since early 2002, we have explored various ways to provide informal education and outreach focusing on current research presented directly by the researchers doing the work. The Center currently provides a centerpiece for instruction on southern California seismology for K-12 students and teachers for various Scripps education endeavors. Future plans are in place to use the Visualization Center at Scripps for extended K-12 and college educational programs. In particular, we will be identifying K-12 curriculum needs, assisting with teacher education, developing assessments of our programs and products, producing web-accessible teaching modules and facilitating the development of appropriate teaching tools to be used directly by classroom teachers.