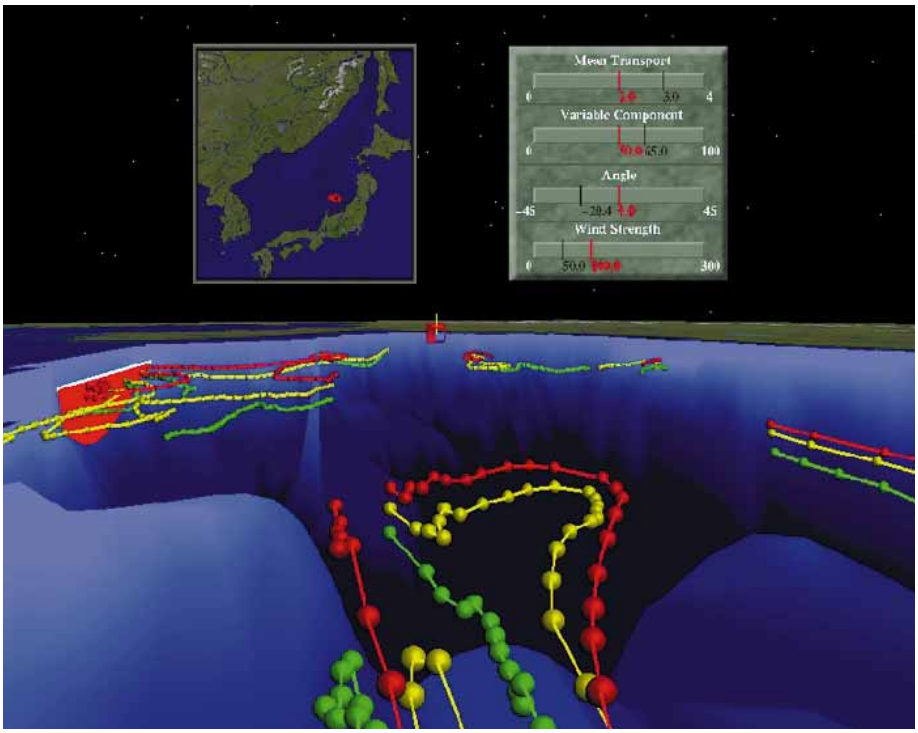
Distributed Scientific Visualization of Ocean Models

This prototype simulation enables operational or exercise planners to test various scenarios prior to initiation of the operation. The application is highly adaptable to training operations via interactive "fly-throughs" of ocean simulations, including interactive control of the ocean model itself.

Participants use a virtual reality boom driven by a Silicon Graphics RE 3 engine. Imaging is also displayed on two Silicon Graphics MAX IMPACT workstations. In addition, a continuous animation describes the evolution of the science of oceanography. In the virtual reality displays, 3-D images of the ocean include undulating surfaces, small tracer balls flowing through space, tub-like surfaces representing currents and eddies, and graphics from raytraced surfaces. The interactive circulation model is user-controlled via keyboard and certain parameters that affect the model's solutions, such as current strength and wind force, are controllable.

These techniques for incorporating high-resolution bathymetry and acoustic backscatter imagery into a simulated ocean floor visualization will eventually be coupled with oceanographic models to produce volumetric/parameter-selectable visualizations of the water column, and the results will be exported into an interactive bathymetric/topographic flythrough/flyover.



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