

# A Web-based Technique to Generate and Visualize 3D Scenes from Global to Local Views

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## Abstract

Global terrain visualization is a very challenging subject. Adopted a client/server architecture for complex, dynamic and distributed 3D scenes, based on hypertext transfer protocol and oriented object methods, a virtual scene for the earth which merges satellite and aerial imagery with DEM data using the Earth itself as an interface is built. Database organization functions in the server, data transfer and real-time display mechanisms are discussed in this paper; then pyramid data structure and wallet analysis principles are introduced to simplified data. How to construct high efficient indexes and algorithms of operating 3D landscape on the browser are also discussed. Finally an experiment is performed using different levels of detail data.

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