

Digital Projection Systems with a Sphere Shaped Screen as a New Tool for Geoinformatics

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The main disadvantage of cartographic editions published in the form of paper maps is their lack of visual representation. Modern GIS representation technologies are highly efficient for the visual analysis of cartographic documents. GIS-technologies are common in demonstration systems based on up-to-date visualization means. One of the most advanced approaches for visualization and representation of georeferenced data is implementation of digital projection systems with a sphere shaped screen. This projection technology is a revolutionary instrument which brings the geoscience data visualization up to a new level. Demonstration complex consists of a spherical display, a tabletop digital projector in a metal chassis with a complicated catadioptric optical system (lens block and mirror), and a PC workstation with special software. Additionally the software allows showing consecutively a series of raster images with a specified speed (up to 30 fps) considering them as a set of frames of an animated sequence. Using this approach the complex was used for animated visualization of temporal evolution of EMMF components, Global warming, sea level rise, tsunami forming processes etc.

Keywords: geoinformation system, geodata, earth sciences digital projection systems, spherical display