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Design of multidimensional geographical models

Ludmila USHAKOVA, A.G. KOSIKOV (Russian Federation)

Modern geographical research use different methods of 3D presentation for visualization of multidimensional data models, that improves the perception and enhance the readability of the large information capacity models. Using three-dimensional visualization in GIS allows creating the illustrative spatial models and shows the objects of complex structure. Currently, special importance is the development of principles and methods for design of spatial geographical models, which, based on the achievements of the traditional cartographic design of two-dimensional electronic maps and geoimages, should take advantage of 3D visualization to create an intuitive, easy to read, the most realistic 3D maps, providing high recognition and detail of objects in a special way organized 3D user interface for data analysis and processing model. The aim of this study is to highlight the most successful approaches to the design of multi-dimensional geographical models in their volumetric visualization based on the analysis of modern variants of map design of three-dimensional geographical models and new types of hardware for 3D data volume rendering. The study analyzes the ways of 3D representation of spatial data in the modern graphic packages and GIS, and discusses the possibility of using the latest stereoscopic, volumetric and holographic surround playback devices to improve the design of multidimensional geographical models.