

THE THEORY AND METHODS FOR SCREEN MAP DESIGN

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Screen map is an instantaneous map displayed on the screen, in the forms of electronic map stored in CD-ROM or other media, Internet map, graphic display of GIS database and mobile dynamic map and so on. In spite of their great differences in appearance, many common features exist between them, since they must be displayed on screen. Screen map is not only an information source, but a product of information system.

First, the paper describes the development and features of screen map and points out the problems that have not yet been solved theoretically and technologically. Considered the pressing demands and situations, screen map design is challenging the cartographers. The authors put forward the ideas that screen map design should count on spatial cognition science and introduce its basic principles and methodology into the map design. The optical physical characteristics of mankind and visual variables to spatial information transmission are also discussed.

Next, the authors propose the object-oriented cartographic technical model, logical design scheme and data structure, and describe the visualization for screen map, including mathematical base transformation, color and symbol design, dynamic annotation, spatial indexing approaches and multi-representation, etc.

Finally, the paper discusses the interface design for screen map. In addition to the principles for user interface design and multimedia technology concerned, the paper stresses the concept of intellectual interface and the framework for its design, esp. for the realization of the function of self-organization and self-adaptive system by constructing multi-user models and intellectual analytical functions.