

The Recent Development of Electronic Atlas Information Systems in China

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Electronic atlas information system is a visualized medium incorporating graphic user interface, geo-database, cartographic models, visualization tools for depicting spatial phenomena and temporal processes, analytical as well as explorative functions for geo-data retrieval, knowledge construction and navigation through the information space. China began to develop its national and regional electronic atlases in early 1980's, intensified the activities in this field early 1990's and took a great leap of productivity since 1995. The paper summarizes the lessons and experiences gained at the Institute of Geographical Sciences and Natural Resources Research (IGSNRR) during four different development stages: (1) before 1990 - the preparation period; (2) 1991-1995 - the starting period; (3) 1996-2000 - the accelerating period and (4) since 2000 - era of atlas information system. Each new stage is characterized by a number of new research tasks that vary from static screen presentation, interactive analysis, multidimensional and multi-perspective design, hyper-linkage and Internet accessibility, publishing issues, spatial cognition, navigation to user adaptation. In the milestones of each stage, the development of hardware and software engineering is well reflected. The major contributions of a number of leading specialists and examples taken from their masterpieces are reported and evaluated from a both historical and scientific point of view. The main subject fields of the available atlases or atlas information systems include social-economy, physical resources and environment, industry, tourism, sustainable and regional development, urban planning and management, population, history, geographic names etc. Current research and development projects are focused on customization of atlas information systems for real-time tasks, Internet operability, small displays and mobile environments. The major challenges involved in each of such customization processes are identified and commented in relation to the further development of computer industry and telecommunication protocols. The authors suggest a successive refinement / re-scaling of the functionality on the basis of the existing atlas information systems for the purpose of consistent design.

Key words: *electronic atlas information system, visualization, interactivity, dynamic and multi-perspective, adaptation*