

# Minnesota Mapping System

## *Provides new access to data at the Borchert Map Library*

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### **Borchert Map Library**

**T**he John R. Borchert Map Library is currently working on organizing and making available for distribution a tremendous amount of geospatial data on the natural and cultural environment of Minnesota.

Entrusted to the library by the University's Center for Urban and Regional Affairs (CURA) with the intent of making it publicly accessible, the data should be available via several methods, including a mapmaking system in the Automated Cartographic Information Center (ACIC), a staffed computer facility located within the map library.

### **Minnesota geospatial data**

The data, totaling 35 gigabytes, includes most prominently 20 datasets, or topical 'layers' of information. Wide-ranging in scope, it is likely to interest primarily natural scientists as it offers extensive information related to land features and conditions, including soil type, geomorphology, pre-settlement vegetation, erosion susceptibility, forest cover and slope.

It may also serve cultural and social needs with state-wide data on land use, demarcations of a number of political boundaries, roads and trails and classifications of "scenically attractive" areas. Raster imagery such as digital orthophotos and topographic line maps accompany the maps. Much of the data was collected in the mid-1990s from various state and federal agencies, notably the U. S. Geological Survey (USGS) and the Minnesota Department of Natural Resources (DNR); and it is public information distributed in a number of formats and via numerous projects.

### **Science Museum of Minnesota**

Before being transferred to the Borchert Map Library, the data was maintained by the Science Museum of Minnesota and applied in several projects. A "Map Lab," launched with the support of Environmental Systems Research Institute (ESRI), DNR and CURA,

was established at the museum in 1997 with the mission of educating the public in Geographic Information Systems (GIS).

### **Sustainable Lakes Project**

An initial project at the lab was the Sustainable Lakes Project, a two-year effort initiated in 1997 in collaboration with the Minnesota Lakes Association and CURA. This project sought to coordinate lake management planning in Minnesota, and involved gathering data about the major factors contributing to the quality and characteristics of state watersheds.

### **Watershed information**

A 'Watershed Atlas' made up of 21 watershed resource maps, as well as the 'Sustainable Lakes Workbook,' were produced.

The data also provided groundwork for an exhibit and activity space at the museum in December 1999 entitled "Find Your Watershed" for the ArcView GIS-based application developed for public viewing of the data. That application was formulated with the object of introducing GIS technologies to visitors as well as using the data in a watershed management framework and educating the public about resource characteristics in an interactive, browseable format.

### **Minnesota Mapping System**

The means by which the Borchert Map Library will distribute the data is still being negotiated, but most likely it will be served via an application called "Minnesota Mapping System" using ArcGIS on a dedicated terminal in the ACIC.

This GIS-based mapmaking system is currently being designed by Suteera Wiseskul, a student in the Master of Geographic Information Science (MGIS) Program, working with George Orning, Research Fellow at CURA, and Brent Allison, Head of the Borchert Map Library.

## **Entrusted to the library by CURA, with the intent of making it publicly accessible, the data should be available via several methods.**

### **Create custom maps**

Users will have the ability to create custom-made maps on demand, with the option of printing them using the library's large-format plotter, a color DesignJet purchased by the library in 2001. The application is meant specifically for mapmaking; and the data have been prepared accordingly: classified, supplied with corresponding legends, and presented in cartographic layouts with scale and directional notations.

### **Automated Cartographic Information Center**

Although the Automated Cartographic Information Center is staffed by MGIS students, operation of the system should require minimal guidance; users wishing to conduct advanced GIS operations may export files as .mxd files (ArcMap documents). In addition to Wiseskul's system, a number of other storage and distribution methods are being considered, including interactive mapping and PDF files on the Web, as well as FTP and CD-ROM.

The "Minnesota Mapping System" will complement the electronic geospatial data collection and services already maintained at the ACIC. At present, the ten-workstation GIS and mapping lab serves a variety of cartographic needs, including Census mapping, a CD-ROM collection of local and federal government data and commercially-produced data, and assistance with the lab's hardware and software.

Established with the support of a grant from the U. S. Department of Education in 1992, the facility has grown beyond its initial purpose of providing means to map the 1990 Census data. GIS software is loaded on all terminals: ArcView, MapInfo, or most recently added on select machines in the lab, ArcMap 8.1, and standard applications including graphic software, Internet access and other desktop tools are provided.

### **More resources**

Of the digital resources stored in the ACIC, most heavily used are the 2000 digital orthophotos of the Twin Cities metro area provided by the Metropolitan Council, and the DOQs (Digital Orthophoto Quadrangles) for the state of Minnesota produced by the USGS. Many maps previously available only in paper are also now stored on CD-ROM, including the Minnesota Trunk Highway Traffic Volume Maps from the Minnesota Department of Transportation and the Digital Raster Graphics of USGS topographic quadrangles. In addition to electronic data and software, the facility also has a collection of instructional materials about GIS, including both manuals and CD-ROMs.

The Library is pleased to provide storage and access to the CURA datasets, which are expected to be available for public use by February 2002. To inquire further about the project or the data sources, call Brent Allison at the Borchert Map Library: 612-624-0306.

■ Communications about this article can be addressed to: Kimberly Kowal, Librarian, Borchert Map Library, S-76 Wilson Library, West Bank; 612-624-0306.



### **For more information**

- ESRI (2000), GIS at the Science Museum of Minnesota: 10,000 Lakes, Unlimited Maps. ArcNews online. Online. Available at <http://www.esri.com/news/arcnews/fall00articles/10000lakes.html>
- Karypis, D. (2000), Find your watershed activity for the Science Museum of Minnesota's Map Lab. Thesis. Department of Geography, University of Minnesota.
- West, P. and G. Orning (2000), Sustainable Lakes Project: A Lake Management Model for the Future. CURA Reporter 30(4): 15-22. Online. Available at <http://www.cura.umn.edu/reporter/pdf/2000-Dec.pdf>