

2004 Denver Annual Meeting (November 7–10, 2004)

**Paper No. 249-3**

**Presentation Time:** 1:30 PM-5:30 PM

## MANAGING A GEOLOGIC DATABASE FOR GROUNDWATER APPLICATIONS

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The Illinois State Geological Survey (ISGS) maintains a large and distributed inventory of both digital and non-digital geologic information. These data include location and geologic information collected from various types of wells and borings, from field studies, and from historic/published collections. Digital tabular data are housed in an archival Oracle database. GIS data that include geologic and cultural information (e.g., geology, aquifers, coal resources, the public land survey grid, municipal boundaries, etc.) and digital imagery are managed in ArcGIS. Survey geologists are integrating subsets of these assorted data for detailed (1:24,000 scale) mapping of the glacial deposits in Illinois .

The challenges arise in: 1) developing a framework and procedures that facilitate multi-disciplinary exchange of project data sets among ISGS scientists; 2) converting non-digital data to digital format in a timely and efficient manner; and 3) delivering products (maps, databases, models) to the scientific community, other government agencies, and the public. To meet these challenges we added new fields to existing data bases; built multi-access 'working' databases; and developed web-based forms for data entry.

We implemented the centralized mapping database for a pilot study of the Central Great Lakes Geologic Mapping Coalition in northeastern Illinois. This database allows the seamless transfer of data from which 3-D lithologic, stratigraphic, and hydrostratigraphic models of subsurface geology can quickly be constructed and delivered to clients via various media and/or the internet. The 3-D models developed for this project are being used to better define groundwater sources, to map aggregate resources, and to provide baseline data for engineering and environmental protection studies.

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[General Information for this Meeting](#)

Session No. 249--Booth# 102

[Geological Mapping: Providing for Successful Water and Land Resource Planning \(Posters\)](#)

Colorado Convention Center: Exhibit Hall

1:30 PM-5:30 PM, Wednesday, November 10, 2004

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