

2003 Seattle Annual Meeting (November 2–5, 2003)

Paper No. 32-14

Presentation Time: 8:00 AM-12:00 PM

NEW PROTOCOLS, PROCESSES, PRODUCTS, AND APPLICATIONS OF 3-D GEOLOGIC MAPPING IN NORTHEASTERN ILLINOIS

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The value of geologic information in decision-making by public agencies is often not fully realized because the 1) protocols we follow, 2) data we gather, and, 3) products we deliver (maps, databases, models) from our geologic mapping commonly are explained without sufficient clarity, or presented in a format that is difficult to integrate into public databases and discussions on sustainable growth and resource utilization. We developed protocols for 1) verifying and entering data into both our working and permanent databases, 2) acquiring, describing, and presenting graphically the geologic samples information, and, 3) integrating geophysical information into the 3-D modeling. The resulting 1:24,000-scale maps for surficial geology, bedrock topography, and drift thickness revealed detail not previously recognized. Their large scale and use of only verified data (locations for boreholes) helped resolve specific stratigraphic units in our 3-D model.

Our quadrangle-sized 3-D model illustrates, for the first time, the complexity of the geometry of the glacial materials, several of which are aquifers. We analyzed the depths to which water wells were screened in each section to better understand the spatial aspects of these aquifers and their utilization. The extent of several units was quite different than previously mapped. Ongoing research will better characterize the aquifers. Our new mapping protocols will allow us to deliver customized information, e.g., relationship of well distribution, depth, and aquifer geometry, to our clients more rapidly and with greater clarity than in the past.

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Session No. 32--Booth# 121

[Geological Mapping: Key to Successful Management of Water and Land Resources \(Posters\)](#)

Washington State Convention and Trade Center: Hall 4-F

8:00 AM-12:00 PM, Sunday, November 2, 2003

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