DIGITAL MAPPING TECHNIQUES 2019

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The contents of this document are provisional

See Presentations and Proceedings from the DMT Meetings (1997-2019)

http://ngmdb.usgs.gov/info/dmt/
Examples of new and legacy NCGMP09/GeMS-compliant geodatabases from Kansas

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ABSTRACT

KGS’ main geologic map series is organized by county. Before GIS, most were bulletins, last published in 1974 – books including a geologic map, providing a wealth of information. In the KGS GIS era (1988-present), map products range from recent, well-documented projects to which geodatabase standards can be relatively easily applied, to older legacy maps presenting problems due to scarcity of information other than the map. The GeMS standard provides a framework for national and interstate data cooperation, and for getting valuable information to the user, who has a right to know the history, quality, and background of the geologic data. Many resources are now available to encourage use of GeMS. KGS is moving toward converting as many geology geodatabases as possible to GeMS – this presentation provides examples with both recent and older county geology data.
Examples of new and legacy NCGMP09/GeMS-compliant geodatabases from Kansas

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KGS’ main geologic map series is organized by county. Before GIS, most were produced as bulletins – essentially books including a map of the county geology, providing a wealth of information. The last bulletins were published in 1974.

In the KGS GIS era (1988-present), map products range from recent, well-documented projects to which the standard can be relatively easily applied, to older legacy maps which can present problems due to scarcity of information other than the map.
Reasons for the standard

• Much-discussed reasons
  
  • In the near future, StateMap deliverables will include GeMS-compliant data for all the reasons discussed earlier here at DMT;
  
  • Greater ease in assembling a national set of geology GIS data;
  
  • Data sharing between federal, state and other governmental units.
• The map/data user

• The end user has a right to know, as best as we can deliver, the history, quality, and background of the data;

  • Detailed attributes of the geology;
  • Methodology – how the data was created;
  • Resources used to create the data;
  • When the data was created, detailing the process steps where possible.
GeMS provides a framework

• A ready-made system for getting information to the user

  • Contains required, as-needed, and optional elements that should fulfill most data users’ needs;

  • Many resources are now available to encourage use: https://ngmdb.usgs.gov/Info/standards/GeMS/

    • GeMS Toolkit – ArcGIS tools for the schema;
    • Example maps;
    • Pilot projects;
    • Extensive documentation;

• One drawback – staff time/resource commitment.
Example 1 – Morris County, KS

- Map released in 2016, NCGMP09 version soon afterward:
  - All steps documented by mapping geologists;
  - Methodology included extensive fieldwork, GPS, mapping in ArcGIS using imagery and DEMs;
  - Detailed geologic descriptions and accompanying text.
Example 2 – Ellis County, KS

- Map released in 1988 (updated 1996), NCGMP09 version in 2014:
  - First GIS map, created using proprietary software, data converted to Esri format;
  - Methodology was primarily extrapolating geology from county soil survey sheets;
  - Legacy map requiring much investigation to assemble NCGMP09 product.
ArcGIS demo
Summary

• In addition to its use for other goals, GeMS-formatted geologic maps/data are of great benefit to the end user:
  • In many cases, provides information not previously available;
  • Allows users to evaluate differences in data from map to map – no more “just trust us”;
• In my case, it has also benefitted me by educating me about each map and its data as I assemble the NCGMP09/GeMS gdb.
Questions?