DIGITAL MAPPING TECHNIQUES 2019

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http://ngmdb.usgs.gov/info/dmt/
Geospatial Frame Data Model to Simplify Digital Geologic Map Compilation and Integration

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Abstract

Digital maps in the same series have long been and still are the same bedrock units. However, these are no longer produced in a top-down manner with simple, sequential, and adaptive digitizing maps. There exists fewer gaps, overlaps, and disconnects in the data that are not used to detect and. The underlying image is a single or sometimes even a combined change of digital objects that are digitized in different languages and scales. However, the bedrock polygons are not the result of spatial database ‘views’ or ‘materialized views’ of the GFD data. These ‘views’ are prone to topological errors when used to compile, update, and integrate digital geological maps. Polygons representing geological units are not part of the GFD model that dispenses with polygons at the map compilation and integration stages. Instead, the GFD model consists of lines connected to anchorpoints that are used to snap the bedrock polygons to the corporate GFD database (Figure 1).

Introduction

The British Columbia Geological Survey (BCGS) commenced a province-wide digital geology project in the early 1990s as part of the mineral resource assessment project, and the digital geology data was released to the public in 2005. The BCGS digital geology is consolidated in the subdisciplinary data-sets, including the rock units B, C, and D. Lines in green represent the anchorpoints on the anchorlines in the corporate GFD database are used to snap the map polygons to the corporate GFD database. Our goal is to compile and integrate the geospatial frame data (GFD) model that dispenses with polygons at the map compilation and integration stages. The geospatial frame data model is implemented in our Geoscience Operational Database Environment using spatial database technology. The approach and practices can be easily adopted by others using spatial database technology.

Compilation and integration problems

Polygons are not unique maps of one-dimensional and two-dimensional objects. The BCGS digital geology is a model of triangular faces that represent the surface expression of bedrock polygons. In addition, the bedrock polygons are not used in the map compilation and integration stages. Furthermore, the bedrock polygons in finished geological maps are prone to topological errors when used to compile, update, and integrate digital geological maps. Polygons representing geological units are not part of the GFD model. The selected GFD are tagged as anchorline (in red), representing the surface expression of bedrock polygons.

Integration of geospatial frame data

To integrate digital geologic maps, a common task is to fix overlaps, gaps, disconnects, and other problems with the GFD data. The use of ‘geographic frame data’ (GFD) allows us to develop a ‘mapping tool’ and an anchoring mechanism to fully automate the data integration process. The anchorlines in the corporate GFD database are used to snap the bedrock polygons to the corporate GFD database after the mapping project area.

Solution: geospatial frame data model

The need for map datasets to work seamlessly and the complete compilation of project GFD data model data with digital maps is an important step in the map compilation and integration stages. Polygons representing geological units are not part of the GFD model. The selected GFD are tagged as anchorline (in red), representing the surface expression of bedrock polygons.

Database applications: production and publication

Most of the operations are automated or semi-automated through a combination of database applications using SQL, PL/pgSQL as front-end GIS tools or database-side manipulation. Most of the operations are automated or assisted through database applications developed in SQL, PL/pgSQL as front-end GIS tools or database-side manipulation. Some of these are used to snap the bedrock polygons to the corporate GFD database.

Compilation and integration environment

System components

The geospatial frame data model is implemented in our Geoscience Operational Database Environment using spatial database technology. The geospatial frame data model is implemented in our Geoscience Operational Database Environment using spatial database technology. The approach and practices can be easily adopted by others using spatial database technology.