Using GIS Data to Develop a Better Physiographic Map: The Michigan Example

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Abstract
GIS data are proliferating, and thus geographic mapping applications for such data abound. Previous physiographic maps of Michigan, published by Veatch in 1930 and 1935, and fornies in 1977, were produced with limited information on soils and surficial sediments, and without other sources of digital geographic data which are in widespread use today. In 2009, Schaetzl, Darden, and Brandt made use of such data in a small-scale physiographic map, but even then, more recent GIS data were available, facilitating the larger-scale, more detailed mapping effort we now report on. As part of a graduate research seminar on Geography of Mid, we used a variety of recently acquired databases and data layers to develop a new physiographic map for the state. Our mapping (qualitatively, within a GIS structure) was based largely on terrain, soil, and hydrologic attributes, although we also had access to spatial data on glacial drift, streamflow, water table depth, bedrock geology and its elevation, various kinds of local relief measures, pre-settlement vegetation and contemporary land use. The data essentially divided the state into 30 named, physiographic regions. These were then compiled into 10 major physiographic divisions. This type of map has many potential uses in contemporary land planning, as well as in paleogeographic (paleomorphologic evolution) interpretations. We intend to publish our map as a paper product, which is also available for viewing at http://www.msu.edu/annrvc/geo/...