

# INTEGRATION OF *THE NATIONAL MAP*: DATA LAYERS AND FEATURES

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## ABSTRACT

The United States Geological Survey (USGS) is seeking partnerships to ensure that current, complete, consistent, and accurate geographic base information is readily available and useful to the Nation (Groat, 2003). *The National Map* will be a seamless, continuously maintained set of base information that will serve as a foundation for integrating, sharing, and using other data easily and consistently (USGS, 2002). Data integration is a significant challenge for *The National Map*. Examination of data integration from a layer-based approach has begun for developing a conceptual framework based on resolution, geometric accuracy, and topological consistency. We will apply this conceptual framework to five of *The National Map* data layers: digital orthoimages, elevations, land cover, hydrography, and transportation. The framework developed from this approach will allow an examination of a feature approach to integration based on a model previously developed and implemented as a feature library.

This study is motivated by the fact that *The National Map* will consist of integrated datasets, a digital product similar to the comprehensive, integrated lithographic printed map, and that current USGS digital products are single layer and not vertically-integrated. The goal is to develop procedures for automated integration based on metadata. Preliminary results indicate that data integration of layers for *The National Map* can only be accomplished with datasets that are compatible in resolution and accuracy. Further, it appears that mathematical transformation can automate integration within limited ranges of scales, but cannot correct generalization differences between datasets.

## REFERENCES

- Groat, C. G. (2003). *The National Map – A Continuing, Critical Need for the Nation*. *Photogrammetric Engineering and Remote Sensing* **69** (10) 1087-1090. American Society for Photogrammetry and Remote Sensing, Bethesda, MD.-
- USGS (2002). *The National Map: Topographic Mapping for the 21<sup>st</sup> Century*. U.S. Geological Survey Fact Sheet 018-02, Reston, VA-USA.