

## **Project Summary**

### **Rocky Mountains Cooperative Ecosystem Studies Unit**

**Project Title:** Generalization and Data Modeling for New Generation Topographic Mapping

**Type of Project:** Research

**Project Discipline:** Interdisciplinary

**Funding Agency:** USGS

**Other Partners/Cooperators:** University of Colorado Boulder

**Effective Dates:** 7/1/2008 - 6/30/2013

**Funding Amount:** \$50,000

**Investigators and Agency Representative:**

**Investigator:** Barbara Battenfield, Department of Geography, University of Colorado at Boulder, Boulder, CO 80309, 303-492-3618, babs@Colorado.EDU

**Project Abstract:**

The emergence of national and more recently, of global spatial data infrastructure has improved our abilities to manage and monitor natural and land resources, to analyze and understand environmental processes, and to anticipate and mediate consequences of natural hazards, storms, and disasters. Integrating data models and data infrastructure is a necessary prerequisite to numerical analyses and GIS-based modeling and to delivery solution such as The National Map. A critical component of integrating data infrastructure is to generalize, manage, and support data representation across multiple scales. Data integration has important implications for cartographic design, display, and visualization of geospatial data at multiple scales since users of The National Map expect that download data will "fit together" visually. Analytical uses of downloaded data carry special needs and requirements, to support reliable data measurements and any resolution, and to insure that features integrate horizontally (with layers) as well as vertically (between layers).

The proposed research will prototype and test automated integration and generalization from finer to coarser user-specified resolutions, to support needs for data integration for multi-scale mapping and analysis. We will investigate efficient methods to compare among existing datasets and databases, to determine whether integration problems are likely to surface, and if so, at what resolutions. We will explore automated methods for indexing and cataloging generalization and data processing procedures automatically, to make it easy to share and disseminate the results of our work, and others' work as well.

**Outcomes with completion dates:**

Final report is due June 30, 2013

**Keywords:** Data modeling and integration, topographic mapping, GIS, University of Colorado Boulder, USGS