# Visualizing Geographic Processes

Dr. Mark Harrower
Department of Geography
maharrower@wisc.edu

January 9, 2007
University of Wisconsin—Madison
www.geography.wisc.edu/~harrower/

## Abstract

The digital revolution has changed how we make maps, how we use them, and how we think about them. Dynamic geospatial systems are increasingly integrated throughout the research process and allow experts to think through complex problems visually. One of the guiding principles of geovisualization is that users must be allowed to freely explore complex geographic data both to confirm existing hypotheses and to formulate new ones. In the last ten years there has been an explosion of available geospatial data. What remains is the challenge of turning these *data* into useable *information*. The use of interactive maping systems spans a conceptual space from private, exploratory knowledge construction through interactive public presentations. This field has emerged as traditional disciplinary boundaries blur, drawing on work in GIS, cartography, remote sensing, computer science, semiotics, cognitive science, and software engineering. Examples of prototype geographic visualization systems will be demonstrated, including approaches to representing uncertainty and error in geospatial data, dynamically linked statistical and cartographic systems, and tools for exploring the impact of temporal and spatial scale.

## Bio

Mark Harrower is an Assistant Professor of Geography and Associate Director of the Cartography Lab at the University of Wisconsin-Madison. His current research interests include perceptual and cognitive issues in map animation (in particular, 3D maps), interface design in Web-based mapping, developing tools for automated map generalization, and critical cartography/GIScience. Mark also serves on the editorial board of *Cartographica, CaGIS, Cartographic Perspectives, URISA Journal,* and *Blackwell Compas* and is an active member of the ICA Commission on Visualization and Virtual Environments, the Cartography Specialty Group of the AAG, and the North American Cartographic Information Society.