Pulling it all together: developing the spatiotemporal layers to support location-based integration

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The promise of open data and statistics for sharing and integrating data from multiple sources is great. It is especially hopeful for combining data from different disciplines to explore the interaction of human activity and the environment. However, without adequate infrastructure to support a clear linkage along spatial and temporal dimensions, the researcher is left on their own to develop these all important relationships. The difficulties are great, for example, data without clear spatial boundaries, statistics representing dissimilar points in time or averages of multiple points in time, inconsistent data availability over time, or mismatched spatial boundaries between data sources. As the research focuses in on smaller areas, urban, sub-urban, and regional statistics, the problems increase. The Minnesota Population Center (MPC) at the University of Minnesota is dedicated to addressing these issues. Known primarily for its large integrated collection of world-wide census microdata, IPUMS, the MPC has also made available historical collections of U.S. Census and other aggregate statistics along with the spatial boundary files associated with those geographies in the National Historical Geographic Information System (NHGIS). The NHGIS is currently increasing its usability by creating time series for common statistical tables. A new project funded by the U.S. National Science Foundation, Terra Populus, brings together population, environmental, land use, climate, and areal data through location-based integration. The project will provide an organization and technical frame work to preserve, integrate, disseminate, and analyze global-scale spatiotemporal data describing population and the environment.

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