

GIS and Historical Research

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Introduction

For many years historical research in GIS (Geographic Information Systems) was based on hardcopies of maps sometimes old and damaged. Since many of them existed in only a small number of copies, access to them was restricted, which made the research process very problematic. The situation has changed with development of GIS technology. Modern GIS software enables the scanning, digitizing and storage of almost any kind of map. Moreover, it makes possible analysis and comparison of different data sources that were impossible during the “hardcopy” era. Mapping plays an important part in historical research, especially in data visualization and data exploration.

The technological process usually includes scanning the old map, georeferencing (converting from the digitizing method-imposed coordinates to real-world coordinates) and the creation of digital files (shapefiles or a geodatabase) by digitizing a scanned image. Layers of data related to the same place but different period of time may then be superimposed and analyzed in a GIS much more efficiently than using more traditional cartographic methods. Time management problems might be solved either by the creation of multiple shapefiles or by adding the time period as a field into the attribute table.

Map production for historical atlases requires the use of many GIS mapping functions, including different types of symbolic representation, choropleth mapping and flow mapping. GIS also makes possible not just the production of maps but also facilitates the creation of diagrams and tables as well as various forms of statistical analyses.

The current generation of GIS applications from ESRI, such as ArcGlobe and ArcScene can be used to introduce animation to historical research. These applications make possible the creation of animated files from relatively simple animated GIFs to more complex video formats such as AVI or MPEG. Moving imagery can be used to do more than simply present time series, it can also be used to change viewpoints or even to generate fly-through virtual landscapes.

Sources

Ian B. Gregory has written an excellent introduction to the use of GIS in historical social scientific research: [A Place in History: A Guide to Using GIS in Historical Research](#). This book provides an introduction to GIS knowledge relevant to historians without assuming any prior knowledge. An attractive feature of “A Place in History” is the inclusion of case studies from historical projects that have used GIS as well as an extensive reading list of GIS texts relevant to historians. Is this quoted from somewhere else?

There are many web sites that show historical maps or offer historical atlases (for sale). Two examples include: (a) The Euro Atlas (<http://www.euratlas.com/atlastor.htm>) web site provides links to online historical atlases of Europe, and (b) The World History Maps

<http://www.worldhistorymaps.com/index.htm>) web site contains many historical maps of the World and North America.

And, there are several large international projects that actively use GIS:

[The National Historical Geographic Information System](#) (NHGIS) is a project to create and freely disseminate a database incorporating all available aggregate census information for the United States between 1790 and 2000. The NHGIS has three primary goals: (a) collect and enrich historical and contemporary U.S. Census summary data; (b) incorporate these data into a Geographic Information Systems framework; and, (c) create a web-based system for access to both census data and the metadata.

[Great Britain Historical GIS](#). This project is creating a Historical Geographical Information System for Great Britain covering the period from the late 1830 until the early 1970s, when data starts to become available in digital form. This GIS database includes accurate boundary data for the changing administrative areas of Britain linked to a major database of social, economic, and electoral statistics from throughout the period. This is a great resource for researchers interested in British history over the past 200 years.

[The China Historical Geographic Information System](#) (CHGIS) project was launched in January 2001, with funding from the Luce Foundation. The CHGIS will establish a database of historical administrative units for different periods in Chinese History, and will also provide a base GIS platform for researchers to use for spatial analysis, temporal statistical modeling, and representation of selected historical units as digital maps.

[The Cultural Atlas](#) is designed to be a tool for visualizing and analyzing historical and cultural phenomena. With the capacity to create customized maps based on a theme, era and region of interest, you can quickly answer--or at least frame--questions that would once have taken a lifetime: What religions had pilgrimage sites along the Silk Road? Was there much regional variation in mortality in nineteenth century Britain? The Cultural Atlas can be used for research, teaching, advocacy, and resource discovery

Similarly, there are many sources for historical data online that may be useful for demographic research. Three are listed below:

[Historical Census Browser](#) was developed at the University of Virginia. The data available describe the population and economy of U.S. states and counties from 1790 to 1960. The terms and figures in the Historical Census Browser come directly from the statistical volumes published for each decade's decennial census (U.S. Bureau of the Census).

[Integrated Public Use Microdata Series](#) was developed in Minnesota Population Center, University of Minnesota. I-PUMS consists of twenty-five high-precision samples of the American population drawn from thirteen federal censuses.

[The Great Britain Historical Database](#) is a large database of British nineteenth and twentieth-century statistics.