Spatial Data Analysis with Urban and Regional Explorer: Data, Methodology and Applications

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Co- sponsored by

China Data Center, the University of Michigan, USA
GeoDa Center for Geospatial Analysis and Computation, Arizona State University, USA

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1:00pm – 4:00pm
Ottawa Westin

1. Outline

This half-day workshop is designed to introduce some new online tools for spatial studies, which will include Urban and Regional Explorer, a web based system for spatial data analysis offered by the China Data Center at the University of Michigan. This system utilizes the spatial analytical web services built on the spatial statistical library, PySAL, which is developed by GeoDa Center for Geospatial Analysis and Computation at Arizona State University. With this spatial explorer, users are able to retrieve spatial and non-spatial data, generate maps, charts and reports, conduct spatial statistical analysis, and make rapid, accurate spatial decisions with greater confidence. Data sources in this database includes demographic and business information for all PRC geographies, including 31 Provinces, 345 Prefecture Cities, 2,873 Counties, and over 50,000 Townships. It will demonstrate how space-time data of different formats and sources can be integrated, visualized, analyzed and reported in a web based system. Some applications in population and regional development, disaster assessment, environment and health, cultural and religious studies, and household surveys will be discussed for China and global studies. The workshop will discuss the methodology, functions, and data available for spatial studies as well as China studies. Researchers from government agencies, research institutes, and universities will find the workshop particularly relevant.

2. Instructors and their qualifications

Shuming Bao is a senior research coordinator for China initiatives of the International Institute and the senior research associate of the China Data Center at the University of Michigan in Ann Arbor. He is also the founding director of the Lab for Urban and Regional Analysis of East China

University of Science and Technology. His primary research interests are in GIS, regional economics, spatial statistics and econometrics. Dr. Bao has published more than 50 journal papers and book chapters.

Xinyue Ye is an assistant professor who holds a dual appointment between Center for Regional Development (Department of Commerce EDA University Center) and School of Earth, Environment, and Society at Bowling Green State University, Ohio, USA. He is Associate Editor of Stochastic Environmental Research & Risk Assessment (SCI Journal) and the recipient of Regional Development and Planning Emerging Scholar Award from The Association of American Geographers. His research interests focus on GIS, space-time analysis, and economic geography.

China Data Center is a constituent unit of the International Institute at the University of Michigan. Founded in 1997, the China Data Center is designed to serve as an international center for advancing the study and understanding of China. A primary goal of the Center is the integration of historical, social and natural science data in a geographic information system. Its missions are: to support research in the human and natural components of local, regional and global change; to promote quantitative research on China; to promote collaborative research in spatial studies; and to promote the use and sharing of China data in teaching and research.

GeoDa Center, directed by Professor Luc Anselin at Arizona State University, is devoted to the development, implementation and application of state-of-the-art methods of geospatial analysis. PySAL, a free open source for spatial analysis, is developed by the Center. The center deals with research questions at different spatial scales, from the local to the global. Application areas include a range of substantive fields, such as regional science, economic geography, environmental economics, criminology, public health, and other social and natural sciences.

Both centers are collaborating in developing web based tools for spatial data analysis. The workshop will demonstrate the new cutting-edge development and future directions for urban and regional analysis in cyberspace.

3. Format and Outline

A similar workshop on “Spatial Data Analysis in Cyberspace: data, methodology and tools” was organized by the same group during RSAI 2011 annual conference in Miami on November 9, 2011. As the only pre-conference workshop, it attracted over 60 participants across 10 countries and received very positive feedbacks. The organizers have also conducted a series of similar summer workshops in China, which have greatly promoted regional science and spatial analysis in China.

Objectives

This workshop is designed to introduce some new tools for spatial studies in cyberspace as well as their applications for urban and regional studies.

Learning Outcomes

Participants will learn the methodology for urban and regional analysis, newly developed web based tools for spatial data analysis, as well as their applications.

Topics: （3 hours）

- Methodology and Implementation with Urban and Regional Explorer (45 min)
- Spatial Data Analysis with Urban and Regional Explorer (45 min)
- Applications with Urban and Regional Explorer (45 min)

Highlights include:

- Learning online spatial analysis with PySAL
- Learning spatial weight matrix creation
- Conduct web-based spatial data analysis
- Effectively access and deliver spatial information
- The applications of spatial analysis for environment, population, economy, religion and spatial decision support

Format of workshop: 1/2 day

4. **Intended audience**

   Anyone who are interested in learning the essentials of web-based spatial data analysis.

5. **Required material**

   Participants are requested to bring their laptop.

6. **Contact information**

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