Web-based Infrastructure for Spatially Integrated Social Science

Donald Janelle

University of California, Santa Barbara

Association of America Geographers Los Angeles, 22 March 2002



The CSISS Mission recognizes the growing significance of space, spatiality, location, and place in social science research. It seeks to develop unrestricted access to tools and perspectives that will advance the spatial analytic capabilities of researchers throughout the social sciences. CSISS is funded by the National Science Foundation under its program of support for infrastructure in the social and behavioral sciences.

GIScience 2002 Call for Participation

Learning Resources

Spatial Resources CSISS has compiled

Spatial Tools

information about software analysis of spatial data. Here's where you'll find for the exploration and

and other spatial resources

for the social sciences.

CSISS Events

Search Engines

e-journals, bibliographies,

About CSISS

CSISS News

Core Programs

These introductory materials include CSISS Classics and select video clips from the CSISS summer workshops.

programs form the core of

the Center's activities.

These six infrastructure

equity, spatial externalities, Join one of the forums on Community Center topics such as spatial

proposal are described here. CSISS people, programs and the original NSF and spatial econometrics

Try CSISS's custom search analysis resources on the engine to find spatial

Internet

for workshops, conferences information and registration and specialist meetings. Here's where you'll find

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S Classics	ire Outlines	JS Activities & ings	al Analysis & GIS	A Core Curriculum	se Syllabi	shop Video Clips	rs & Presentations
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Learning Resources

www.CSISS.org

An archive of exercises, lectures, demos

- CSISS Classics
- Course Syllabi (by discipline)
- GIS Core Curriculum 1990 / 2000
- Intro Lectures in Spatial Social Science/ S Sweeney
- Spatial Analysis and GIS/ M Goodchild
- Video clips of CSISS Workshops

Center for Spatially Integrated Social Science

CSISS Classics

summaries and illustrations of major contributions to spatial thinking in the an attempt to capture and acknowledge the repository of spatial thinking in social sciences. Primary emphasis is given to research before 1980, with the social sciences for the last few centuries. The summaries, along with key references, are intended as guides for those interested in exploring generations of researchers and practitioners. CSISS Classics provides The foundations of spatial analysis span many disciplines over many intellectual inheritance from previous generations.

thought that should be represented in this collection - please send these to Your help is requested in suggesting topics, key papers, and schools of the CS/SS Classics editor, Don Janelle janelle@geog.ucsb.edu.

CSISS CLASSICS: SPATIAL INNOVATORS AND INNOVATIONS BEFORE 1980

Kelley, Florence

Title: Slums of the Great Cities Survey Maps, 1893

Spatial Concept: pattern analysis mapping of social conditions, maps for social advocacy

Discipline: Demography, Public Health, Sociology, Urban Studies, Womens Studies

Kurath, Hans

Title: Linguistic Atlas of the United States

Spatial Concept: geographical linguistics, isogloss mapping, speech areas and speech

boundaries

Discipline: Anthropology & Archaeology, Area Studies, Linguistics

Mayhew, Henry

Title: London Labour and the London Poor, 1861

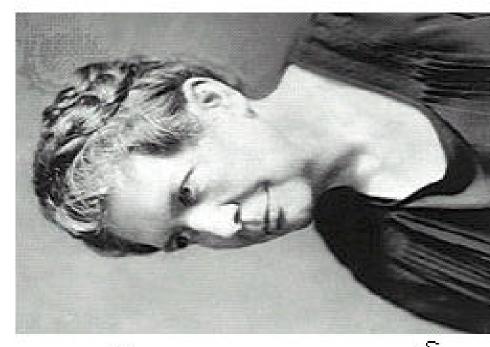
Spatial Concept: choropleth mapping, ecological relationship

Discipline: Criminology, Sociology, Other

Florence Kelley, Slums of the Great Cities Survey Maps, 1893

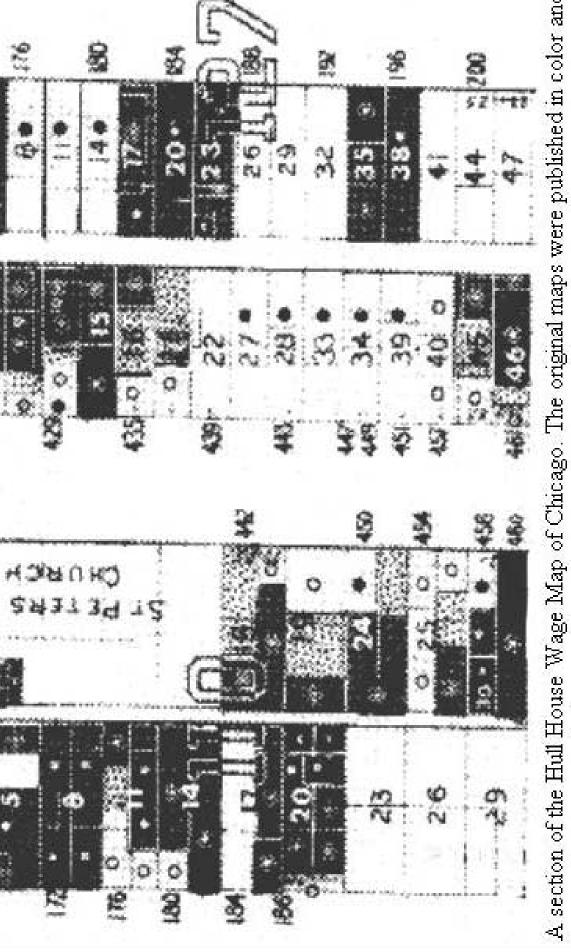
Background Kelley, Florence (1859-1932)

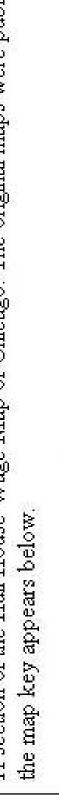
Florence Kelley, the daughter of Congressman William D. Kelley, was one of the most dedicated social activists of the Progressive Era. A graduate of Cornell University and Northwestern University Law School, Florence Kelley was drawn into period at the University of Zurich. In Europe she read the work of Karl Marx (1818-1881) and Friedrich Engels (1820-1895) and became an ardent socialist. She later translated into English Engels' *The Condition of the Working Class in London* (1887) and corresponded with Engels for the remainder of his life. When Kelley returned to the



Library of Congress, Washington D.C.

United States she married a socialist labor leader, but the marriage was short lived In 1891 Kelley divorced and moved to Chicago, where she hecame a

















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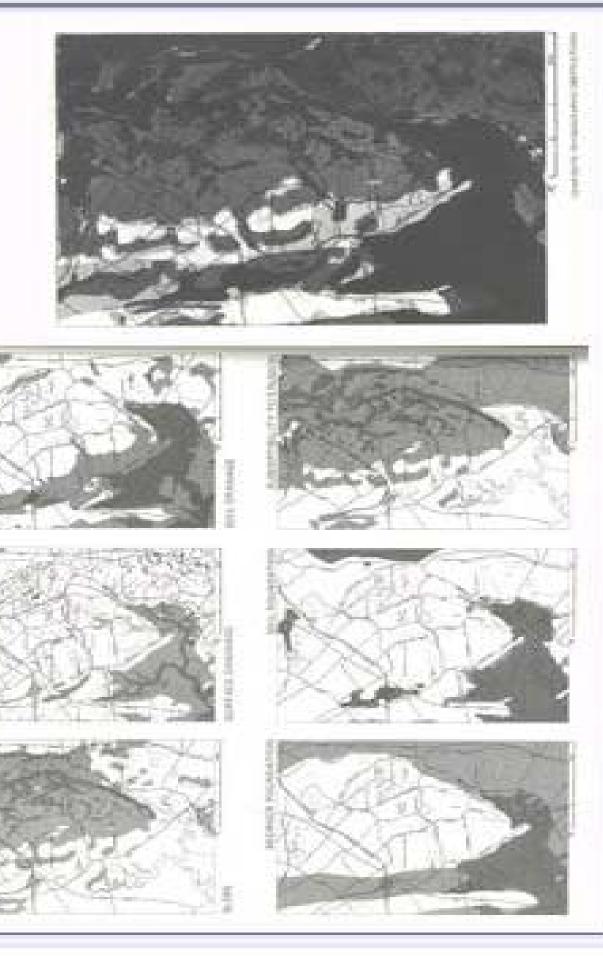
lan McHarg: Overlay Maps and the Evaluation of Social and Environmental

Costs of Land Use Change By John Corbett

hosted his own show, "The House We Live In," on the CBS television network, confined to the halls of academia. In 1960, McHarg near the gritty, industrial Scottish city of Glasgow, Harvard University, where he picked up degrees in andscape architecture and city planning. He was responsible for the creation of the Department of cities to better accommodate the qualities of the he gained an early appreciation of the need for pioneers of the environmental movement. Born Pennsylvania. McHarg, however, would not be natural environment that until then had largely been shunned. After serving in World War II, Background Ian McHarg (1920-2001) was one of the true McHarg went to the United States to attend -andscape Architecture at the University of

an early effort to publicize discussion about humans and their environment.





To heal the earth: Selected writings of Ian L. McHarg. Edited by Ian L. McHarg and Frederick R. Steiner. (Washington, D.C.: Island Press, 1998).

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A quest for life: An autobiography. (New York: John Wiley & Sons, 1996).

"Man and environment." Leonard J. Duhl and John Powell, editors. The urban condition. (New York, NY: Basic Books, pp. 44-58, 1963). "A comprehensive highway route selection method." *Highway research record*, 246:1-12 (1968). Ecological determinism." F. Fraser Darling and John P. Milton, editors. Future environments in North America. (Garden City, NY: The Natural History Press, pp. 526-38, 1966).

Related Works

Klopatek, J. M. and Gardner, R. H., editors. Landscape ecological analysis: Issues and applications. (New York, NY: Springer, 1999). Lyle, John Tillman, Design for human ecosystems; Landscape, land use, and natural resources. (New York, NY: Van Nostrand Reinhold, 1985).

Links la

lan McHarg reflects on the past, present and future of GIS Design with nature is still important

The use of GIS on the Colorado Plateau

Syllabi From Leading Researchers in Spatial Social Science

Anthropology • Archaeology • Criminology • Demography • Economics Environment & Resources . Public Health . History . Political Science Spatially Integrated Social Science . Sociology . Urban Studies & Urban Planning

This page provides links to reading lists of courses taught by leading researchers in spatial social science, organized by discipline. The links are provided with the permission of the researchers are not directly affiliated with CSISS; in all cases the researchers are considered by CSISS to be leaders in the analysis of space within their discipline.



Global Positioning Systems

http://www.css.cornell.edu/courses/465/css465.html

for field-based survey and mapping of plots, fields, boundary conditions, and other definition; 3) Correction of position data using various methods; 4) Transfer of data designed to be a very practical, hands-on experience with GPS instruments used real-time and post-differential correction, and GPS-GIS integration. The course is instruments in a field setting; 2) Collection of position data and feature boundary (GPS) instruments used in agriculture and environmental science. Emphasis is perimeter of delineated feature(s); and 6) Production of maps depicting spatial This course is an introduction to navigation-grade Global Positioning System bio-physical features. The Course Objectives are 1) Familiarization of GPS placed on instrument familiarization, field data collection and processing, from a GPS environment to a GIS environment; 5) Estimation of area and ocation and extent of delineated feature(s)

Arthur J. Lembo, Jr. and Stephen D. DeGloria, Department of Crop and Soil Sciences, Cornell University

2000 e Mil Search Engines Spatial Tools Search Social Science Data Literature Search Internet Search Site Search Engine Search

The CSISS Web Search Engines

- Building databases of web sites Thunderstone's Texis
 Webinator web walking and indexing software
 (seeded with ~1500 terms related to spatial social
 science
- About 36,000 websites / updated weekly
- User Searchable via keyword entries or access via directories
- Under development: a spatial search tools for accessing
 Data Archives via links to a gazetteer part of CSISS place-based search project
- Spatial analysis software Tools Search Engine

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GIS, GPS, remote sens*

Web Search

Search

1 through 10 of 178 of the best matching documents. Help

1. The GIS Portal! Great GIS Net Sites! GPS / Remote Sensing / Page: 12345678910

of SIS GIS Jobs GIS Data and Software Library Online GIS Classic Space

GIS Sites GIS WWW Resources GIS Software Companies GIS Books

Colleges, Universites and Research Institutes Breaking **GIS** News! The

Best Web Resource Lists! **GIS** / Mapping Companies **GIS** Services

GIS Related Sites U.S. Federal Government Agencies State/Provincial

Worldwide Government Agencies Non Governmental Organizations GPS / Remote Sensing / Space GPS / Remote Sensing / Space Government Agencies Municipal/Local Government Agencies

New cince last undated Lowrance Docitioning Decourses Ltd. Airborne

8 The Asian GIS Portal

Mountains Natural Hazards Oceanography Urban Planning Utility Water Page | Recommend this Site Subscribe Site Update **GIS** News Career Resources Technology GIS GPS Remote Sensing Image Processing Asian GIS Portal Site Map | Click here to make this your Default Home Environment Forestry GII Geology Geomorphology Health LIS Military Publications Tenders Tutorials Policy Application Agriculture and Soil 18/04/2001 Indonesia to launch telecom satellite in 2003 FleetBoss's LIDAR Processing Software now available from Airborne 1 Pixxures' cost effective fleet management solutions MapInfo augments Market Alert Tender Alert Email Education Books Glossary History of Maps Analysis Solutions with Census 2000 Data Terrasolid's TerraScan Photogrammetry Synthetic Aperture Radar (SAR) Modelling and Sensors Internet GIS Aerial Photography & Surveying News Archaeology Biodiversity - Ecology Business Geographics Cartography & Map Publishing Data Conversion Digital Online Storefront for Digital ... http://www.gisdevelopment.net/

Education Strategies for Integrating Metadata

Metadata Education Project Metadata education strategies by: Course type Course topic Learning Outcome Course Types Strategies for a IN A CAROTEL INFORMATION OF ALL MANAGERS AND IN A



Social Science Archive Search Too

name or names of countries Theck the box next to the rou wish to research.

Clear Search

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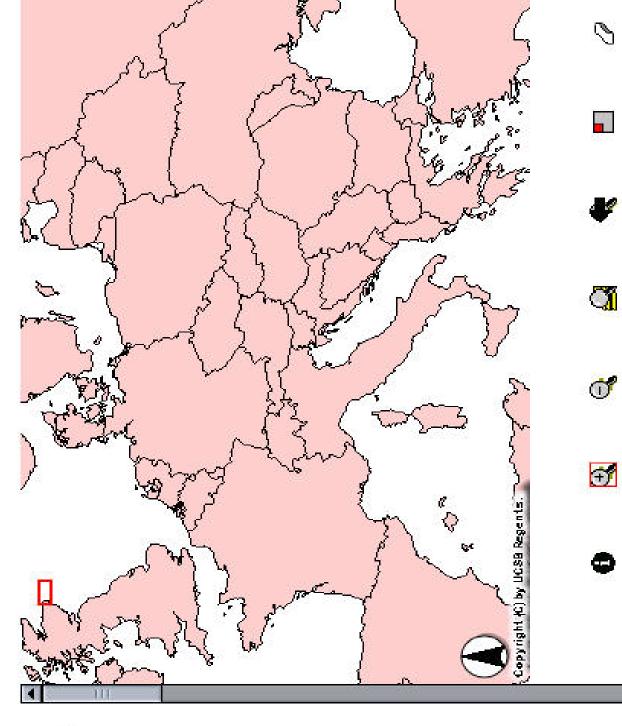
Azerbayan

Bangladesh Belgium

Belize

Benin

Bolima



On: I^N Australia SSDA I^N ICPSR I^N Swedish Archive I^N UK Data Archive I^N CSISS Web Search 8 For: Austria

Search

1. SE- EFTABAROMETER AUTUMN 1992: AUSTRIA, FINLAND AND SWEDEN --

Top results from the Swedish Archive

European Community matters. The respondent had to indicate how well informed she/he was about the EC, an mass media about ..

2 : SE- WESTERN EUROPEAN ECOLOGICAL DATA --

WESTERN EUROPEAN ECOLOGICAL DATA Västeuropeiska ekologdata SSD_0258 Status: 2A Princip

Department of Political Science Umea University ...

Eurobarometer surveys, Eurobarometer 43.0, March-April 1995 (SSD 0507) and Eurobarometer 43.1: Intern 3. VE-EUROBAROMETER 43.0 AND 43.1. DRUG ABUSE AND AIDS, MARCH-MAY 1995 --

April-May 1995 (SSD 0508)....

Parliament scheduled in June of 1999. The principal topic of the survey was the experiences respondents report 4 : SE-EUROBAROMETER 48.0: HOLIDAY TRAVEL, OCTOBER-NOVEMBER 1997 --

Respondents were asked ...

DEMOGRAPHIC CHARACTERISTICS Demographic Characteristics Demographic and economic analysis: 5 : Untitled

statistics 1952 Parish statistics ...

On: In Australia SSDA F ICPSR F Swedish Archive F UK Data Archive F For: transportation

Search

CSISS Web Search

SE-DEMOCRATIZATION OF PUBLIC TRANSPORTATION SINCE 1820 --Top results from the Swedish Archive

2. SE- PRIVATE LONG DISTANCE TRAVEL MODE SELECTION --(1855-1906) and in ...

The study deals with the variations of caravan traffic, i.e. the number of departed horses per yea

Transportforskningsdelegationen (1982): Den resandes ensak. Stockholm 1982:1 Start year: 19

IMPORT - EXPORT 1974 Import - Export 1974 SSD_0253 Status: 2A Principal investigator 3 SE-IMPORT - EXPORT 1974 --

transport Abstract: This file contains

4 : SE- GENERAL PUBLIC AND PRIVATE MOTORISM 1988 --

What car producers ought to concentrate on. How to collect information when to purchase a ca

place of hung, ...

5. SE- SERVICE SURVEY: OLD-AGE CARE IN FIVE TYPE MUNICIPALITIES 1993 --

Local citizen survey 1991 (SSD 0306). The survey was directed towards persons aged 65-85.

status, size of household

Literature Search of Spatial Analysis in the Social Sciences

- •Database of ~ 10,000 entries
- Searches abstracts and keywords
- •Retrieves bibliographic references
- •Derived from Econ Lit, Sociological Abstracts, Social Sciences Citation Index, Humanities Citation Index, MLA International Bibliography, Anthropological Literature, Historical Abstracts, America: History and Life, and California Digital Library

Research Areas for CSISS Literature Search

Spatial econometrics
GIS in the social sciences
Map making & Visualization
Spatial simulation & spatial-temporal dynamics
Spatial optimization & spatial interaction modeling

1 through 10 of 102 matching documents, best matches first.

suits by: THUNDERSTON

Page: 12345678910

next>>

1: Population Growth, Distribution and Density Changes, and Urbanization in Zimbabwe: A Preliminary Assessment following the 1982 Census

1987. Dames, D. Hywel. African Urban Quarterly v2n(1): 13-23.

Get Citation, View Record, Find Similar

2. The Visualization of Local Urban Change across Britain

1995. Dorling, D. Environment and Planning B-Planning & Design v22n(3): 269-290.

Get Citation, View Record, Find Similar

3. The Geography of a **Population** Mass-Escape from the Tel-Aniv Area During the Gulf-War

1992 . Efrat, E. . Geographical Journal v158: 199-206.

Get Citation, View Record, Find Similar

4. An American Diaspora? Patterns of Jewish Population Distribution and Change, 1971-1980

1990 . Newman, William M. and Peter L. Halvorson. Review of Religious Research v31n(3): 259-267.

Spatial Tools Search Engine J., Spatial Tools Links to Portals Select Tools Sec ഗ

Center for Spatially Integrated Social Science

CSISS Tools Clearinghouse

goal of this clearinghouse is to provide up-to-date information on available tools. The spatial analysis. The development of these tools is a lively research area and the The CSISS Tools Clearinghouse is intended to grow into a robust collection of spatial analysis software, software links, and links to information about tools for clearinghouse is comprised of:



Search Engine

Dearch a continuously updated, comprehensive index of the CSISS Select Tools and Links to

Portals.

Select Tools

Browse through tools particularly suited to the analysis of spatial phenomena.

Links to Portals

A listing of useful collections of software tools for anyone interested in Spatial Analysis, or those looking for specific tools.

CSISS Tools

Forthcoming - a collection of spatial toolboxes developed by Luc Anselin.

Spatial Tools Search Engine

autocorrelation'

'spatial

Word count: 'spatial autocorrelation': 35

Documents 1 - 10 of about 35 matching the query, best matches first.

Submit

Analysis of spatial autocorrelation of USGS 1:250000 digital elevation models

Jay Lee and Louis K. Marion Department of Geography Kent State University Kent, OH 44242-0 paper describes the results of performing numerical analyses of spatial autocorrelation on 1.250,000 http://spatialodyssey.ursus.maine.edu/gisweb/spatdb/gis-lis/gi94064.html - size 14K -

Analysis of spatial autocorrelation of U.S.G.S 1:250,000 Digi...

Analysis of spatial autocorrelation of U.S.G.S 1:250,000 Digital Elevation Models Author. Jay Lee Elevation Models) Format: html Date: 18/09/01 Time: 13:52:57 Remote Name: 202.28.179.1 Rem

 $http://www.ai-geostats.org/online\ papers/\ papers/0000004d.htm$ - size IK-

Moran s I and Geary s c are well known tests for spatial autocorrelation. They represent two speci measures spatial autocorrelation. Moran s I is produced by standardizing the spatial autocovariance http://xerxes.sph.umich.edu:2000/ppa/doc/globals/Globals.htm - size 6K -

Nearest Neighbor Analysis

See Anselin(1995) for a complete discussion of Local Moran s I and LISAs. Input Input data file, w each point. The maximum study distance (d). The number of bands within d. The weights matrix file http://xerxes.sph.umich.edu:2000/ppa/doc/Locall/Locall.htm - size 7K -

Spatial Tools Search Engine

Word count: Openshaw: 6 Opensham

Submit

Documents 1 - 6 of 6 matching the query, best matches first.

Redefining the spatial support of environmental data in the Regional HydroEcologic

and precipitation defined at points, leaf area index defined by remotely sensed unages ; http://www.ncgia.ucsb.edu/conf/SANTA_FE_CD-ROMsf_papers/dungan_jennife Regional HydroEcological Simulation System (Coughlan and Dungan in press). The pr

Visualizing Spatial Data Uncertainty Using Animation

Published in Computers in GeoSciences, Vol. 23, No. 4, pp. 387-395, 1997. The issu Be the first in your research lab, company, or university to get one! Visualizing Spatial http://everest.hunter.cuny.edu/~chuck/CGFinal/paper.htm - size 37K -

Redefining the spatial support of environmental data in the R...

Regional HydroEcological Simulation System (Coughlan and Dungan in press). The pr and precipitation defined at points, leaf area index defined by remotely sensed images $http://www.ai-geostats.org/online\ papers/\ papers/00000030.htm$ - size IK -

Modeling Elevation Uncertainty in Geographical Analyses

Uncertainty in Geographical Analyses. Proceeding of the International Symposium on \$ May deling Floreston Traceston in Geographical Applined by Proposed Figure 1

CSISS Select Tools

exploration and analysis of spatial phenomena in the social sciences. This list is by no means complete and, it is hoped, will comments, have found an error, or would like to nominate a tool for inclusion please contact the Tools Manager, Luc Anselin continue to grow with input from the research community. Inclusion on this list is not an endorsement by CSISS. If you have Below is a list of Spatial Analysis Tools. CSISS researchers have chosen these tools for their usefulness in aiding the

All websites on this page have been comprehensively indexed by the CSISS Spatial Tools Search Engine.

Cartographic Data Visualizer (CDV)

http://www.kinds.ac.uk/kinds/cdv.htm

A visual, interactive, graphic front end for analyzing spatial datasets.

ClusterSeer

http://www.terraseer.com/csr/clusterseer features.html

CLusterSeer provides statistics for evaluating disease clusters in space and time.

CrimeSta

http://www.icpsr.umich.edu/NACJD/crimestat.html

A spatial statistics program for the analysis of crime incident locations.

Fragstats

http://www.umass.edu/landeco/research/fragstats/fragstats.html

COmputation of wide variety of landscape metrics for categorical map patterns.



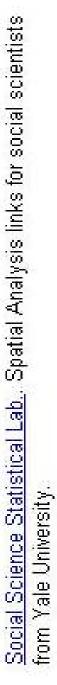
Spatial Tools Links to Portals

Below is a list of *portals*, i.e., collections of links, found useful to researchers of spatial phenomena in the social sciences. All portals listed here have been comprehensively indexed and are searchable at the CSISS Spatial Tools Search Engine.

If you have comments, have found an error, or would like to nominate a portal for inclusion please contact the Tools Manager, Luc Anselin at anselin@uiuc.edu.

Spatial Analysis Tools





Spatial Analysis Starting Points. Additional GIS and Spatial Analysis Links from Georgia.

Math and Statistics archives with spatial content

StatLib. Perhaps the largest statistical site on the web.



CSISS 2002 Summer Workshops

Accessibility in Space and Time: A GIS Approach

Columbus, OH

July 22-26, 2002

Selected participants will receive a \$500 scholarship towards expensi

TAKE ME TO THE APPLICATION FORM

Map Making and Visualization of Spatial Data in the Social Sciences

Santa Barbara, CA

July 22-26, 2002

Selected participants will receive a \$500 scholarship towards expense

TAKE ME TO THE APPLICATION FORM

Introduction to Spatial Pattern Analysis in a GIS Environment

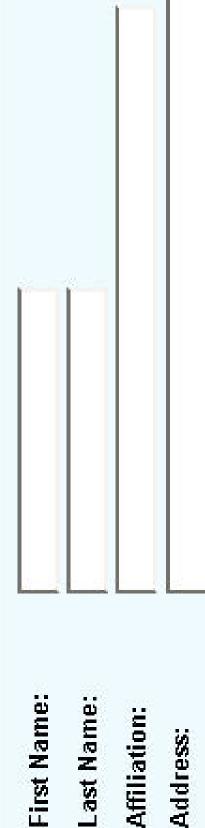
Santa Barbara, CA

July 29 - August 2, 2002

Application Form for Workshops and Scholarships Summer 2002 Workshops

Application for CSISS-Sponsored Workshops and Scholarships requires comp of the form below.

Map Making and Visualization of Spatial Data in the Social Sciences Introduction to Spatial Pattern Analysis in a GIS Environment Accessibility in Space and Time: A GIS Approach Select Workshop:

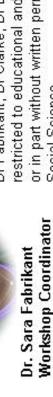




Map Making and Visualization of Spatial Data

Map Making and Visualization of Spatial Data. The original workshop was taped in July 2001 by UCSB Production Services, under the direction of Ray Tracy. The workshop featured five We offer here several video clips and slide shows produced from Dr. Fabrikant's workshop, lecturers: Dr Barbara P. Buttenfield, Dr Keith C. Clarke, Dr Dan Dorling, Dr Waldo Tobler, geographic visualization for the Social Sciences. Sessions covered principles of scientific workshop far exceeded the number of slots that were available, and so CSISS is seeking and Dr Sara Fabrikant. The summer course introduced spatial information design and visualization, graphical design, and thematic mapping. Applications for this popular alternative ways to present the information.

restricted to educational and instructional uses and must not be sold or distributed in whole The intellectual property rights associated with these presentations belong to the lecturers, or in part without written permission from the presenters and Center for Spatially Integrated Dr Fabrikant, Dr Clarke, Dr Buttenfield, Dr Tobler, and Dr Dorling. Use of these clips is Social Science.



The videos and slide shows offered on this page were edited by Nina Brown to present key concepts by workshop lecturers. You will need the RealPlayer™ to view these clips. The Real SlideShow™ files are smaller than the Real Video™ files, so they will display more quickly:

The Cartographic Process by Dr Barbara P. Buttenfield	Real SlideShow 10:22 min	
Perspectives on Cartographic Communication by Dr Barbara P. Buttenfield	Real SlideShow 12:54 min	
Principles of Perceptual Organization by Dr Sara Fabrikant	Real SlideShow 10:11 min	
Mapping Volumetric Data by Dr Barbara P. Buttenfield	Real SlideShow 10:15 min	Real Video 8:57 min 40 MB
Dot Maps by Dr Sara Fabrikant	Real SlideShow 9:03 min	
The Advantages of Cartograms by Dr Dan Dorling	Real SlideShow 4:29 min	Real Video 8:15 min 16 MB

CSISS

Specialist

Meetings

May 10-11, 2002 Santa Barbara, CA Spatial Data Analysis Software Tools Specialist Meeting 2002

2001

Location-Based Services Specialist Meeting Santa Barbara, CA December 14-15, 2001 Externalities Specialist Meeting Santa Barbara, CA January 11-13, 2001

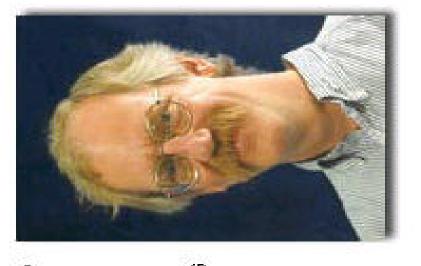
2000

Inequality and Equity Specialist Meeting Santa Barbara, CA November 12-14, 2000

Specialist Meeting on Spatial Data Analysis Software Tools

Upham Hotel, Santa Barbara, CA May 10-11, 2002

"This meeting will bring together software developers from both the public/academic sector as well as the private sector who deal with tools to visualize spatial data (geovisualization), carry out exploratory spatial data analysis (ESDA) and facilitate spatial modeling (spatial regression modeling, spatial econometrics, geostatistics), with a special focus on the potential for social science applications."



Jr. Sergio Rey, Organizer

Dr. Luc Anselin, Organizer





Center for Spatially Integrated Social Science

UCSB / Principal Investigator: M.F. Goodchild

Co-PI: R.P. Appelbaum

Program Director: D.G. Janelle

Building resources for spatial analysis in the social sciences

www.CSISS.org

- Internet Gateway to Spatial Analysis
- Virtual Community for Spatial Social Science
- Learning Resources for Researchers
- Summer National Workshop Program
- Spatial Analytic Tools Development