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AUTHOR Davie, D. Kevin, Comp.; Fox, James, Comp.; Preece, Barbara, Comp.

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ABSTRACT

The Association of Research Libraries (ARL), in partnership with Geographic Information System (GIS) vendors and foundations launched the GIS Literacy Project in 1992. This SPEC Kit and Flyer provide results from a survey conducted to examine how, in the years since the GIS Literacy Project began, ARL libraries have organized their delivery of GIS. Results are discussed in the SPEC Flyer in terms of the survey questions which focused on four categories: (1) general information about the library's role in delivery GIS services; (2) the number, level, and academic preparation or other training of staff involved; (3) the amount and kind of equipment, software, and data files that support GIS in the library; and (4) the kind of service offered and by whom it is used. The SPEC Kit contains: the survey questionnaire summarizing and tabulating results; a list of responding institutions; representative documents from ARL, the University of Georgia, Harvard University, North Carolina State University, and Southern Illinois University; and selected readings and World Wide Web sites. (AEF)

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SYSTEMS AND PROCEDURES EXCHANGE CENTER

Kit 238

The ARL Geographic Information Systems Literacy Project

March 1999

ED 429 609

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SYSTEMS AND PROCEDURES EXCHANGE CENTER

Flyer 238

The ARL Geographic Information Systems Literacy Project

March 1999

Introduction

Geographic Information Systems (GIS) is a term used to denote a collection of computer hardware, software, geographic data, and personnel designed to collect, manipulate, analyze, and display spatially referenced information. The result is usually a map, image, or chart that can reveal patterns and relationships among data that may not otherwise be apparent. By the early 1990s, libraries, especially those that are depositories for U.S. government documents, were receiving large quantities of such information in electronic form, but many of them lacked the system components necessary to allow the information to be used most effectively.

The availability of more powerful and affordable desktop computers and workstations and the development of GIS software supplied part of the need. To help supply the rest, ARL, in partnership with Environmental Systems Research Institute, Inc. (ESRI), launched the GIS Literacy Project in 1992. Member libraries were invited to send one or two of their librarians to ESRI for free training in using that company's GIS software, which was also furnished free of charge. The response so far exceeded the places available that ARL quickly scheduled a second phase of training to meet the demand.

This survey was conducted to see how, in the years since the GIS Literacy Project began, ARL libraries have organized their delivery of GIS. The questions fall into four main categories: (1) general information about the library's role in delivering GIS services; (2) the number, level, and academic preparation or other training of staff involved; (3) the amount and kind of equipment, software, and data files that support GIS in the library; and (4) the kind of service offered and by whom it is used.

Survey Results

General Information. Surveys were sent to 121 member libraries and returned by 72 institutions (60%), of which 64 reported that they provide GIS services. These services are administered by the library at 53 of the 64 institutions (83%) and by academic departments offering GIS courses at 45 institutions (70%). Clearly, at many institutions, both the library and academic departments administer GIS services. Among libraries that offer GIS services but do not administer them, the most common activity is offering guidance in finding appropriate data sets.

GIS services in responding libraries are usually situated in either the government documents center (48%) or the map library (52%). Subject bibliographers offer the service at 23% of responding institutions. Only three libraries (5%) report having a discrete GIS unit and only seven (11%) provide the service at the general reference desk. Given that so much of the data for GIS in libraries is supplied as government documents and the most common GIS output is a map, these are results one would expect. In addition, the training of librarians under the ARL GIS Literacy Project has been aimed at documents and map librarians.

Staffing. A librarian holding an MLS is the typical staff member in charge of a library's GIS services (81%). In addition to the MLS, 54% of GIS librarians hold at least one additional graduate degree. The "typical" ARL library devoted the following staff resources to GIS services: a librarian, a support staff member, a graduate assistant (10 hours per week), and a student worker (10 hours per week), with librarians and support staff having other duties, of course. The most common GIS training among respondents was at ARL's GIS Literacy Project, to which 37 libraries sent librarians. GIS librarians at 31 institutions have had training by GIS software providers, and at 28 they have learned GIS in coursework. Technical support for GIS hardware or software is provided by library staff at 51 institutions (80%).

Infrastructure. The most popular GIS software by far at ARL libraries is ESRI's ArcView, which is used by 78%.

Designed to handle 60%–80% of typical GIS requests, this software operates on Windows-based machines as well as on UNIX platforms and is relatively inexpensive and simple to install and use. Two-thirds of respondents also use other GIS software instead of or in addition to ArcView.

The most common operating platform is Windows 95/NT, used at 58% of responding libraries, followed closely by Windows 3.1, in use at 56%. DOS platforms were in use for GIS at 14 institutions, UNIX at seven and Macintosh at only four. These findings indicate that some institutions are using more than one operating platform for GIS services. The most common peripheral equipment for GIS at ARL libraries is the printer. Fewer than 20% of respondents provide digitizers, external storage devices, large format plotters, or scanners. Sixty-one percent of ARL libraries use computer networks to search for GIS data or to provide it to users. Digital data files are received as part of the Government Printing Office depository program at 83% of institutions and are supplemented through purchases at 67%. Funds for such purchases total less than $2,000 per year at 45 responding libraries (70%) and exceed that amount at only 12 institutions.

Service. Assistance to users of GIS in libraries is available 20 hours per week or less in 38 responding libraries. Seventeen libraries offer more, and three offer none at all. The largest number of users assisted in a typical week was 120 at one library, but the mean for all respondents was seven users. At the typical ARL library, about half of the GIS users assisted are students; the remainder are fairly equally distributed among faculty, other university staff, citizens, businesses, and local government. Half of GIS users require much assistance, few require little or no assistance, and the rest need some. Few responding libraries charge for GIS services, but among the 17% that do, the most common charge is for printing.

Issues and Trends

GIS services in libraries differ from others in several important ways. Unlike other, more familiar specializations, which were usually subject-based, that of GIS is technical and interdisciplinary. It has been used for everything from geological reports to analyses of regional dialect distribution to studies relating poverty to the availability of public transportation. Except for the specialist in the discipline, self-service in GIS is usually not adequate; producing satisfactory results for GIS users requires more knowledge and time than librarians are asked to provide by most other patrons. And while developments in all kinds of software for delivering information steadily raise the requirements for our computer hardware, GIS imposes especially heavy demands for large, fast, expensive computers and peripherals.

The results of this survey show that ARL libraries are prominent suppliers of GIS services at their institutions. While as depository libraries they receive much spatially referenced data free of charge, they have dedicated scarce resources for staff and equipment to provide these services. The degree of training of GIS staff by ESRI and the widespread use of that company's software in ARL libraries are clear evidence of the influence of the ARL Literacy Project in bringing GIS into the mainstream of services offered by libraries.

This SPEC Flyer and Kit were prepared by D. Kevin Davie, James Fox, and Barbara Preece, Southern Illinois University at Carbondale, as part of the OLMS Collaborative Research/Writing Program.

See also *Geographic Information Systems*, Transforming Libraries no. 2, February 1997. This was issued by ARL as SPEC Kit #219.

Information on the ARL GIS Literacy Project is available at <http://www.arl.org/info/gis/index.html>.

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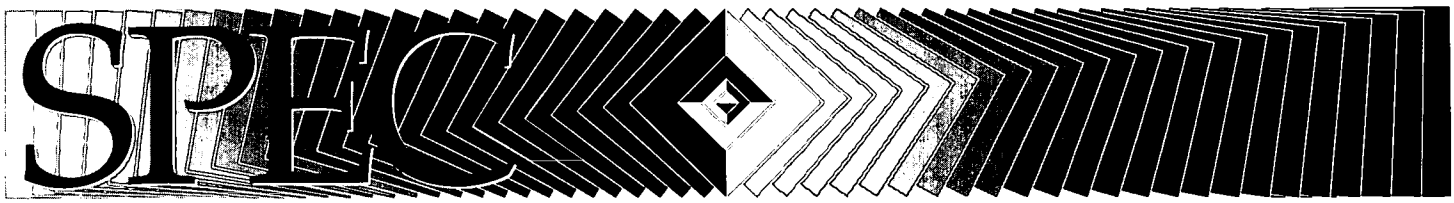

SYSTEMS AND PROCEDURES EXCHANGE CENTER

The ARL Geographic Information Systems Literacy Project

A SPEC Kit compiled by

D. Kevin Davie
Geographic Information Systems Coordinator

James Fox
Associate Dean, Public and Collection Development Services

Barbara Preece
Director for Systems Services

Library Affairs
Southern Illinois University at Carbondale

March 1999

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Production Coordinator: Peter Budka

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Committed to assisting research and academic libraries in the continuous improvement of management systems, OLMS has worked with its constituents since 1970 to seek the best practices for meeting the needs of users. The OLMS Information Services Program maintains an active publications program best known for its Systems and Procedures Exchange Center (SPEC) Kits. Through the OLMS Collaborative Research/Writing Program, librarians work with OLMS staff in joint research and writing projects. Participants and staff work together in survey design, writing, and editing publications that provide valuable insights and management perspectives on emerging trends, issues, and concerns of the academic and research library community. Originally established as an information source for ARL member libraries, the SPEC program has grown to serve the needs of the library community worldwide.

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Published ten times per year, SPEC Kits and Flyers contain the most valuable, up-to-date information on the latest issues of concern to libraries and librarians today. SPEC Kits and Flyers are the result of a program of surveys on a variety of topics related to current practice and management of library programs in the ARL membership. The SPEC Flyer is a summary of the status of a current area of interest. It comments on the present situation, reports on the results of an ARL membership survey, and forecasts future trends. The SPEC Kit contains the SPEC Flyer and the best representative supporting documentation from the survey in the form of policy statements, handbooks, manuals, cost studies, user studies, procedure statements, planning materials, and issue summaries. A valuable feature of each SPEC Kit is its selected reading list containing the most current literature available on the topic for further study.

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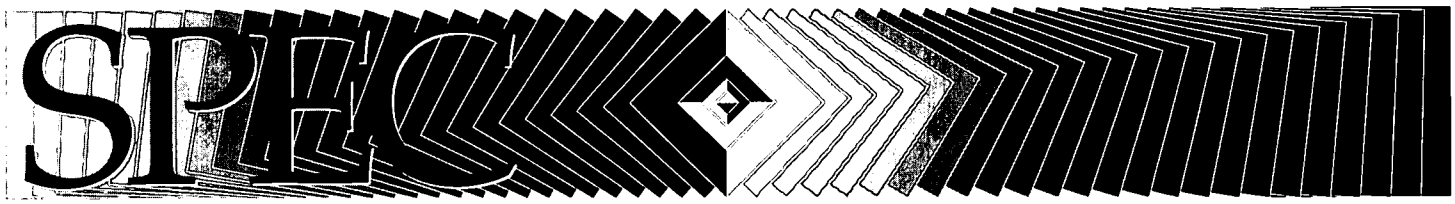

SYSTEMS AND PROCEDURES EXCHANGE CENTER

Kit 238

The ARL Geographic Information Systems Literacy Project

March 1999

Table of Contents

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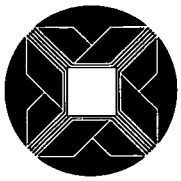
SURVEY RESULTS



ASSOCIATION OF RESEARCH LIBRARIES

March 24, 1997

To: SPEC Liaisons

From: Barbara G. Preece, Southern Illinois University at Carbondale
James W. Fox, Southern Illinois University at Carbondale
D. Kevin Davie, Southern Illinois University at Carbondale

Re: SPEC Survey and Call for Documentation on the ARL GIS Literacy Project

Within the past several years, many libraries have taken on the challenge of providing a relatively nontraditional library service. Through implementing a Geographic Information Systems (GIS) program, many libraries are providing a means to have the increasing amount of digital geographic data become a more useful product for the typical patron. In some cases, the impetus has been the library's participation in the federal government's depository program. These libraries have seen an increase in the amount of information received in varying electronic formats, and it is estimated that nearly 80% of that information is spatially referenced.

Many libraries are developing technology that provides public access to a wealth of available data. As part of the preparation to assimilate information provided by the national information super highway, libraries have taken the initiative towards synthesizing this raw data into forms useful to patrons by developing programs and providing interpretive tools such as GIS.

In the context of this survey, GIS is defined as people using computer hardware, software, and peripheral technology to collect, manipulate, analyze, and display geo-referenced data.

GIS has much to offer library users. Raw electronic data with spatial attributes can be interpreted, viewed, and queried. With GIS, patrons can create new electronic maps or view existing ones; query the database; create statistics; save the information in table form, map form, or to a floppy disk; and print any of the above options.

This survey is designed to gather information about current GIS activities among ARL members. The objectives of the survey are: 1) identify libraries involved in GIS activities and the level of involvement; 2) determine the type of GIS support offered to library patrons; and 3) ascertain the management and support provided by libraries for GIS programs.

Please return the survey via e-mail. Please mail all supporting documentation.

21 Dupont Circle
Washington, DC 20036
202 296 2296 telephone
202 872 0884 fax
http://www.arl.org/

ERIC

THE ARL GEOGRAPHIC INFORMATION SYSTEMS LITERACY PROJECT

Note: There were 72 reporting institutions (60%) out of 121 surveyed. However, because seven institutions responded to the survey twice, 79 responses were tabulated.

BACKGROUND

1. Does your institution serve users of Geographic Information Systems (GIS)?

Yes	64
No	15

If the answer is no, please return the questionnaire.

2. If your institution does serve GIS users, who administers these services? Check all that apply.

Library	53
Information technology/computing	15
Academic departments offering courses; please specify.	45
Business	
Centers and institutes	
Continuing education	
Engineering	
Natural sciences	
Physical sciences	
Social sciences	
Other	12

3. If the library does not administer GIS services, what is its role in delivering the services? Check all that apply.

No role; please stop here and return survey.	4
Offers "canned" GIS views	15
Offers guidance in finding appropriate datasets	28
Offers instruction in using GIS software	20
Offers expert assistance in manipulating data to produce customized products	19
Supports classroom instruction (e.g., advise on exercises, lecture)	15
Other; please specify.	12

- GIS material orientation
- Internet services
- K-12 outreach
- Workshops
- Support of campus site license

4. Who offers GIS services in the library? Check all that apply.

A discrete GIS unit	3
Government documents	31
General reference	7
Map library	34
Subject bibliographer or specialist (e.g., in geography)	15
Other; please specify.	10

- Data resource center
- Electronic data service
- Knowledge navigation center
- Library's GIS team
- Map collection
- Systems department

STAFFING

5. Staff delivering GIS services in the library are headed or coordinated by:

A librarian (holding an MLS)	52
Other; please specify.	10

- Contract staff including:
  - GIS Analyst
  - GIS Coordinator
  - LTAs

6. What is the highest degree held by the library's GIS specialist, other than an MLS?

Bachelor's; please specify major.	24
English	
Forestry	
Geology	
History	
Mathematics	
Philosophy	
Political Science	
Psychology	
Master's; please specify field.	22
Economics	
Geography	
History	
Marine Science	
Political Science	
Public Administration	
Doctorate; please specify field.	6
Anthropology	
Geography	
History	
Linguistics	

7. Please list the library's staffing for GIS in the following categories:

	Number of Respondents	Range	Mode †
Librarians (FTE)*	52	0–2	1@35%
Support staff (FTE)*	27	0–2.2	1@33%
Graduate assistants**	10	0–20	10@20%
Student workers**	14	0–30	10@36%
Other	4	0.5–1	1@75%

**full-time equivalent*

***hours per week when classes in session*

†*figure that occurs most frequently in the range and the percentage of occurrence*

8. How many library staff received training as part of the following? Check all that apply.

	Number of Respondents	Range	Mode†
ARL's GIS Literacy Project	37	0–5	1@46%
College courses	28	0–2	1@86%
GIS software providers, e.g. ESRI	31	1–4	1@61%
Other; please specify. Academic courses Conferences In-house staff training Sabbaticals Self-taught State data centers (e.g., GIS Literacy training at Iowa State University) Workshops	23	1–9	1@56%

†*figure that occurs most frequently in the range and the percentage of occurrence*

9. Technical support for GIS hardware or software is provided by:

Library staff	51
University computing	14
Other; please specify.	15

Academic departments
Campus user groups
Listservs
Nonacademic departments
Personal contacts
Web pages
Vendors

INFRASTRUCTURE

10. What GIS software does the library use? Check all that apply.

ESRI ArcView	50
ESRI ARC/INFO	10
ESRI Atlas GIS	6
MapInfo	13
Other; please specify.	14
Erdas	
ER Mapper	
Idrisi	
Maptitude	
Sammamish Data Finder	
Sammamish Geosight Pro	

11. What operating platform does your GIS run on? Check all that apply.

DOS	14
Macintosh	4
UNIX	7
Windows 3.1	36
Windows 95/NT	37

12. Which of the following peripheral devices are used with your GIS? Check all that apply.

Digitizer	4
External storage devices	
Tape drive	9
Hard drive	19
Compressed drive	2
Large format plotter	7
Laser printer	30
Scanner	10
Standard printer	41

13. Do you use network resources with your GIS for the following? Check all that apply.

Search for data	39
Provide public access to GIS resources	29
Provide information	33

14. How does the library acquire digital data files for GIS? Check all that apply.

GPO depository program	53
Deposit by state agencies	15
Purchase/subscription with library materials funds	43
Donation (e.g. by researchers who acquired files with grants)	19
Other; please specify.	21

Academic departments
ARL/GIS Literacy Project
Canadian Data Liberation Initiative
Create data files
ICPSR data files
Internet
Local government
State GIS alliance

15. Annual library budget for GIS data files or software:

$0–1,999	45
$2,000–4,999	7
$5,000–9,999	1
$10,000+	4

SERVICE

16. How many hours per week does the library offer assistance to users of GIS?

Does not offer assistance	3
0–20	38
21–40	15
41+	2

17. How many GIS users does the library serve in a typical week?

Range	0–120
Number	56
Mean	7

18. Please estimate the proportion of the library's GIS users who fall in the following categories:

	Number of Respondents	Range	Mean	Mode†
Faculty	51	0–90%	22%	10%
Students	55	2–100%	63%	50%
Other university staff	29	0–25%	8%	5% and 10%*
Citizens	29	0–50%	8%	10%
Businesses	21	0–60%	9%	10%
Government	18	0–90%	9%	0%
Other	15	0–10%	2%	0%

**two figures occurred most frequently in the range*
†*figure that occurs most frequently in the range*

19. Please estimate the proportion of the library's GIS users who fall into the following skill levels:

	Number of Respondents	Range	Mean	Mode†
Those requiring little or no assistance	49	0–100%	31%	10%
Those requiring some assistance	51	0–70%	29%	30%
Those requiring much assistance	52	0–90%	48%	50%

†*figure that occurs most frequently in the range*

20. Which categories of GIS users are charged fees for supplies or services? Check all that apply.

	Printing	Consultation	Classroom Instruction
Faculty	11	1	–
Students	11	1	–
Staff	9	–	–
Citizens	11	3	1
Business	11	3	2
Government	10	2	2
Other	6	–	–

Responding Institutions

University of Alabama
University of Alberta
Arizona State University
Auburn University
Boston University
Brown University
University of California–Davis
University of California–Irvine
University of California–Los Angeles
University of California–Riverside
University of California–San Diego
University of Chicago
University of Colorado
Colorado State University
Columbia University
Dartmouth College
Duke University
Georgia Institute of Technology
University of Guelph
University of Hawaii
University of Houston
Indiana University
University of Iowa
Iowa State University
Johns Hopkins University
University of Kentucky
Laval University
Linda Hall Library
Louisiana State University
University of Maryland
University of Massachusetts
University of Michigan
National Agricultural Library
National Library of Canada
University of Nebraska–Lincoln
University of New Mexico
New York Public Library
New York State Library
University of North Carolina
North Carolina State University
Northwestern University
University of Notre Dame
Ohio University
Ohio State University
University of Oklahoma
Oklahoma State University
University of Pennsylvania
University of Pittsburgh
Purdue University
Queen's University
Rice University
University of Rochester
University of Saskatchewan
Smithsonian Institution
Southern Illinois University
State University of New York at Buffalo
State University of New York at Stony Brook
Syracuse University
University of Tennessee
University of Texas
Texas A&M University
University of Toronto
Tulane University
University of Utah
Vanderbilt University
University of Virginia
Virginia Tech
University of Washington
Washington State University
Washington University–St. Louis
University of Waterloo
Wayne State University

REPRESENTATIVE DOCUMENTS

ARL
GIS Literacy Project

- Directories
  - Guide to On-line and Free Goespatial and Attrbute Data
  - National Geospatial Data Clearinghouse
  - USGS Global Land Information System
- Berkeley Resources
  - GIS web resources at Berkeley
  - Berkeley Digital Library: Guide to GIS Resources on the Internet
- Some useful, free, Downloadable Data Resources
  - Geographic Names Information System
  - National Transportation Atlas Database
  - USGS Geodata Download Site
  - EPA Basins
  - LULCIN Arc/ Info Format
- ARL GIS Membership Roster
- ARL GIS Literacy Project on the ARL FTP site--older documents for a historic perpsective
- Transforming Libraries: Geographic Information Systems
- University of Iowa Center for Global and Regional Environmental Research
- Links to Government Sites, Canada, and Provinces
- Other
  - ESRI Home page
  - Wessex Home Page

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The ARL GIS Literacy Project
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For additional information, please contact Prue Adler at prue@arl.org or 202-296-2296.

In June 1992, ARL, with members of the GIS community, began the ARL GIS Literacy Project. This multi-phased Project seeks to introduce, educate, and equip librarians with the skills necessary to provide access to spatially referenced data in all formats, and to provide effective access to selected electronic information resources in library collections. The increasing reliance upon GIS by multiple communities, and in particular government agencies, signaled the need for research librarians to become effective users of GIS. The goal of the Project is to provide libraries with the tools and expertise to permit government information to be used effectively, and for this information to remain in the public domain. Collaboration with others in the public and private sectors is an essential ingredient of the Project and has been instrumental to the successful integration of GIS services and resources into libraries (see ARL 177).

The amount and nature of spatial data, and its use by a growing and diverse array of campus users, presents opportunities for libraries to rethink current practice and to do so in an environment conducive to research, education, and public access. The ARL GIS Literacy Project presents research libraries with an opportunity to bridge current practices with the new networked-based environment. Three of the 6 NSF/NASA/ARPA digital library projects have include a GIS component, with the University of Santa Barbara Project Alexandria focused on spatial information.

The goals of the ARL GIS Literacy Project were designed to meet the current needs of libraries and users while addressing the changes that libraries are facing during this time of experimentation, transition, and transformation to networked- based services. These goals include the:

*introduction of GIS to a variety of libraries (e.g., public, state-based,academic, and university libraries in public and private institutions) to address diverse user information needs;

*development of a team of GIS professionals in the research library community willing to lend time and expertise to applications, user training, and education programs;

*encouragement of connections among federal, state, and local GIS users and information;

*promotion of research, education, and the public right-to-know through improved access to government information;

*initiation of library projects to explore new applications of spatially referenced data and evaluate the introduction of these services in research libraries; and

*implementation of programs to allow institutions that have invested in networking capabilities to leverage the sharing of resources via networks.

The Project provides a forum for libraries to experiment and engage in GIS activities. ARL, in cooperation with GIS vendors and users, solicits donations of GIS software and data, organizes regular training sessions for Project participants, sponsors an electronic mail list, and works with government agencies on GIS programs and related issues. Financial support, data, software, hardware, and expertise has been provided by GIS vendors and foundations such as the Environmental Research Institute, Inc. (ESRI), Wessex, GDT, National Decision Systems, Inc., ERDAS, DEC, the H.W. Wilson Foundation, and the Association of American Geographers. The University of Maryland donated computing facilities for training, the University of Alberta and McGill University will be hosting training sessions for Canadian participants, and the Universities of Kansas and Connecticut donated staff support at the initiation of the Project.

Project Participants

University of Alberta
University of Arizona
Boston Public Library
University of British Columbia
Brock University
Brown University Library
University of Calgary
University of California-Berkeley
University of California-Los Angeles
University of California-Riverside
University of California-Santa Barbara
Carleton University
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Laval University
Library of Congress
Louisiana State University

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University of Manitoba
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University of Massachusetts
Massachusetts Institute of Technology
McGill University
McMaster University
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University of Michigan
Michigan State University
University of Minnesota
University of Missouri - Columbia
Montana State Library
University of Montana
Universite de Montreal
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University of New Brunswick
University of New Mexico
New York Public Library
New York State Library
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North Carolina State University
University of Northern Iowa
Ohio State University
Oklahoma State University
University of Oregon
University of Ottawa
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Stanford University
State University of New York-Albany
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Temple University
University of Tennessee
University of Toronto
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Tulane University
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University of Virginia
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University of Washington
Washington State University
University of Waterloo
University of Western Ontario

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The University of Georgia

Libraries

Digital Spatial Data (GIS) Lab

The Map Room's small GIS Lab is designed to provide patron access to the Collection's holdings of digital spatial data and to spatial data available on the Internet. This page contains a brief overview of:

- Lab Hardware and Software
- Digital Atlases
- ArcView Databases
- Reference Databases
- Other Databases

The Map Room's computer systems are reserved for patrons accessing and manipulating spatial data. The Map Room is not a general University or Libraries computer lab. The Map Room staff, when necessary, will move non-spatial data users from the Map Room's computers so that spatial data users can access data. Patrons can not load their own software or data on the Map Room computers without the permission of the Map Room staff. The Curator of Maps reserves the right to remove any patron from any Map Room computer.
For further information, or for any additions, corrections, or changes to the page, please contact the page's editor, John Sutherland.

• Lab Hardware and Software

Hardware:
The Map Room's Digital Data Lab runs on a LAN Server under Novell software. The server has a 6 Gb hard drive and a 6 CD-ROM drive tower. Attached to the LAN are five workstations and a HP ScanJet IIc scanner, a HP LaserJet IIIp laser printer, and a HP 1200c/ps color printer. The standard workstation is a 486DX2 66 with a CD-ROM drive, a 400Mb hard drive, and sound. The workstations have access to the University broadband and the Web.

Software:
The Map Room Digital Lab currently has the following software available for use:

ArcView 2.1
PhotoFinish
Corel 4 (Draw, Chart, Show, Photo-Paint, etc.)
FactFinder (Census Data mapper)
Cadd6
LandviewII
Miscellaneous other software

• ArcView Databases

- **Some of the ArcInfo format databases are loaded on the Map Room Server in its CD-ROM drives. Currently no data on the server is available to outside users. In the future some data will be made available to off-site users where copyright restrictions allow.**

  Drive J.....ArcUSA 1:25M
  Drive K.....ArcUSA 1:2M
  Drive L.....ArcWorld
  Drive M....US Boundaries - East (Tiger 92 data from Wessex)
  Drive N.....US Streets - Southeast (Tiger 92 data from Wessex)

- **Other ArcInfo databases are on CD-ROM or floppy disks and are held in the Map Room Office CD-ROM stacks. This data includes:**

  Antarctic Digital Database (1993)
  ArcScene (ESRI)
  ArcWorld Statistical Sampler (ESRI)
  Digital Chart of the World
  Soil Map of the World (UNESCO)
  Tiger 92 Sample Data (Wessex)

- **Some of the federal databases are in ArcInfo format and could be used. Please see the list of digital databases.**

• Digital Atlases

Some of the electronic atlases that are currently available on Lab workstations include:

Georgia Atlases:

- **Interactive Atlas of Georgia**

Historical Atlases:

- **Centennia: A cartographic guide to the history of Europe and the Middle East.**
- **Great American History Machine**

Image Atlases:

- **Small Blue Planet**
- **Sure!Maps**

Road Atlases:

- **MapExpert (Street Atlas USA). Delorme Mapping.**
- **Precision Mapping.**

Travel Atlases:

- **Automap Road Atlas for Windows**
- **Map'n'Go. Delorme Mapping.**

World Atlases:

- **Global Explorer. Delorme Mapping.**

• Reference Databases

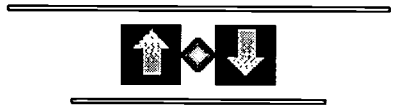
Several reference or cartographic information databases are available including:

APSRS. Aerial Photography Summary Record System. **A USGS database of metadata listing all federal and many other air photo projects covering the United States.**

Cartographic Catalog. **A USGS, Branch of Earth Science (BESI), database that contains 27,000 bibliographic records describing products or services from federal, state, and local government agencies, universities, and the private sector. It contains broad descriptions of sets, series, and types of earth science products.**

GNIS. Geographic Names Information System. **A USGS database containing all names on USGS topographic maps of the United States.**

GeoName Digital Gazetteer. **A commercial database of non-U.S. geographic feature names based on the U.S. Defense Mapping Agency's names database. The over 4 million names in this database in the past was published in the 200 plus volumes of Official Standard Names Gazetteers (U.S. Board on Geographic Names) for the world's nations.**



• Other Databases

The Collection acquires digital spatial data from the various federal and state agencies, commercial companies, and academic research sources. The Map Room holds a wide range of digital spatial databases and maintains a list of all digital data held by the collection. The list is posted on the Map Collection's Home Page and a

printed version is available.

Guide to the Map Collection

Map Room Home Page

Science Library Home Page

UGA Libraries Home Page

University of Georgia Home Page

This page is maintained by the Map Collection staff. Contact the Curator of Maps, John Sutherland. Map Collection, Science Library, University of Georgia Libraries, Athens, GA 30602 Phone: (706)542-0690 Fax: (706)542-6523

Last Update: November 25, 1997
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URL=http://www.libs.uga.edu/maproom/ahtml/mchpmcdl.html

The University of Georgia
Libraries

Map Room Services

Reference and other services offered by the Map Room are grouped into the following sections:

- **General Service Statement**
- **Classes and Tours**
- **Computer Services**
- **Copying**
- **Services to Non-University Users**
- **Services to Off-Campus Users**

Please contact the Map Room staff for further information.

• General Service Statement

The Map Room staff provides cartographic information reference services to all patrons. Reference service is provided in the Map Room, over the phone, by fax, or via e-mail. The Map Room staff will not do research for patrons.

• Classes and Tours

The Map Room staff will give tours of the Map Room to classes, small groups , and individuals. Classes and groups must to request a tour before the desired date. Every attempt will be made to accommodate the requested date but prior commitments may require alternate times or dates. The Map Room staff will give specialized talks on Map Room holdings, data, and other appropriate topics for classes and groups where possible.

• Computer Services

Access to digital cartographic data is provided through the hardware and software systems

in the Map Room's GIS Lab. The Map Rooms computer systems are reserved for patrons accessing and manipulating spatial data. The Map Room is not a general University or Libraries computer lab, and patrons can not load their own software or data on the Map Room computers without the permission of the Map Room staff. The Map Room staff can not train patrons in the use of software or hardware, but will provide limited access support.

• Copying

All materials in the Map Room can be copied, within the bounds of copyright and federal law, except for some fragile and licensed materials. Charges vary with the service but will be based on the current copy room charges for the service.

• Services to Non-University Users

Anyone may use the Map Room's holdings when the Room is open. See the general Libraries procedures for the requirements for obtaining a library privilege card. Other services will be provided to off-site non-university patrons on a case by case basis as staff workloads allow.

• Services to Off-Campus Users

Off-site patrons can request that items in the collection be photocopied and sent to them. Off-site patrons must give the specific location needed, preferably marked on a map, and any other data requirements (such as dates or type of map/air photo), before the Map Room staff can inform the patron if the Map Room has the material and if it can be copied. This service can not be offered on a time sensitive basis. Requests will be processed as the staff has time, with this service given a low priority. Requests that involve large numbers of copies may take a long time to fulfill or may be refused, depending on current work loads. Photocopies will cost the standard rate in existence at the time for the type of copy.

Map Collection Policies, Services, and Hours

Guide to the Map Collection

Map Room Home Page

Science Library Home Page

UGA Libraries Home Page

University of Georgia Home Page

This page is maintained by the Map Collection staff. Contact the Curator of Maps, John Sutherland, Map Collection, Science Library, University of Georgia Libraries, Athens, GA 30602. Phone: (706) 542-0690 Fax: (706) 542-6523.

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URL=http://www.libs.uga.edu/maproom/ahtml/mchpmcp5.html

HARVARD MAP COLLECTION
Services

Reference

The Harvard Map Collection provides extensive reference assistance including on-line searching, cartographic identification and interpretation, genealogical research, and instruction in the use of bibliographic tools. Our reference collection includes gazetteers, general reference works on cartography, indexes and catalogs.

Digital Cartographic Services

The Map Collection provides three public PC computers for viewing and manipulating digital data and software. We currently have over 50 CD-ROMS of cartographic data, approximately 10 stand-alone mapping software programs, and the major Geographic Information System (GIS) packages MapInfo 4.0 and ArcView 3.0. We also have access to Unix ARC/INFO for more complex GIS data processing and analysis. Many of our data files and programs can be used on a walk-in basis, and staff-assisted computer appointments can be made to use more advanced data files and software. One to 1.5 hour staff-assisted appointments can be arranged between 9 a.m.-12 p.m. and 2-4:30 p.m. Monday through Friday, and there is no charge for these appoinments. Maps and tables generated from our electronic resources can be downloaded or printed on our HP DeskJet 1200C 8.5 x 11"color printer. For more information on our digital cartographic resources, software functionality, and a detailed list of our world, U.S., and Massachusetts data files, please see Digital Cartographic Resources.

Photocopying

Self-service black and white copies may be made on the 8 1/2 x 11 copiers in the building. Oversize black and white copies, up to 36 inches wide, overhead transparencies, and 11 x 17 color copies may be ordered through a commercial vendor. Electroprints, black and white contact prints, glossy prints, color transparencies, color negatives, and color slides may also be ordered through the Harvard College Photographic Services Department. vendor. Large format black and white xeroxing costs $1.25 per square foot on bond paper and $1.50 per square foot on vellum paper. Consult the Harvard Map Collection staff for prices of the other reproduction formats.

Equipment

The map collection provides magnifying glasses, drafting T's, a portable light table, microfilm reader, microfiche reader and copier, a public HOLLIS terminal for on-line searching, and 2 computer workstations for CD-ROM and GIS services.

Classes

The Harvard Map Collection does not offer any specific educational classes; however, faculty are encouraged to make appointments to bring classes to the collection where material may be displayed and discussed. Students often find these classes to be an exciting and interesting way to learn about maps. Material for classes can also be put on reserve in the Map Collection.

Return to Home

GIS Service Policy

Purpose

To define GIS software and data use (levels of use); to describe service objectives; and to specify software, instruction, digital data and other GIS-related services offered by the Libraries.

Overview

Background

The NCSU Libraries is participating in the GIS Literacy Project, a multi-year project that seeks to introduce and explore use of GIS in libraries and in the campus community. The project is co-sponsored by the Association of Research Libraries and Environmental Systems Research Institute, Inc. To manage the Libraries' participation in the project, an interdepartmental GIS Team* was formed which consists of staff from the Reseach and Information Services Department and the Natural Resources Library.

Geographic Information Systems (GIS)

A GIS links data to geography and brings a representation (a model) of the world to a desktop computer. A variety of software packages exist, with varying levels of complexity, but each provides the user with the ability to display information in map form, which facilitates analysis and decision-making. GIS and desktop mapping software can be divided into three levels:

Level 1: Initial - A user-friendly system that allows easy exploration and display of spatial information. The system typically contains value-added geographic data (x,y coordinates) and value-added statistical data (attributes). The system also provides the ability to satisfy the need of "instant map gratification." These packages also serve to introduce users to the basic mapping functions and tools which are incorporated into a full GIS. Software examples: MapExpert with Street Atlas USA and Maps N Facts.

Level 2: Intermediate - A system that provides more sophisticated functionality including manipulating, querying, customizing and displaying value-added geographic and attribute data, e.g., ArcData, or public-domain geographic data, e.g., 1992 TIGER/Line files, and public domain attribute data, e.g., Census Summary Tape Files (STF) 3A - including population, housing, and income. Some training or librarian intervention is usually necessary. Software examples: ArcView and MapInfo.

Level 3: Research - A full GIS which includes the ability to capture (digitize/scan), input, store, manipulate, analyze and display value-added, public-domain, or unique geographic and attribute data. Extensive training or librarian intervention is necessary. Software example: ARC/INFO.

Service Objectives

Four service objectives have been identified for the purpose of introducing GIS to library users and exploring its applications to research.

The NCSU Libraries and GIS Team members will:

1. Provide access to desktop mapping software that satisfies diverse campus needs so that users can explore a range of spatial information, Levels 1 - 2.
2. Develop and provide instruction, classroom and individualized, in the use of selected software in Levels 1 - 2.
3. Identify and, when possible, acquire, store and provide access to value-added and public-domain digital data for use in Levels 1 - 3.
4. Identify and recommend for purchase monographs, journals, and other media in the field of GIS.

1. Software

- The NCSU Libraries provides access to a spectrum of desktop mapping software packages in Levels 1 - 2.
- There are publicly accessible GIS computers in two library locations: D.H. Hill Research and Information Services Department ***(Not currently available)***, and the Natural Resources Library.
- The software may be used by faculty, staff, and students of NCSU (**NCSU affiliates**) and individuals from the community (**non-NCSU affiliates**).
- Reservations, in two-hour blocks per day, may be required. If it becomes necessary, preference will be given to NCSU affiliates.
- No products may be used for commercial purposes. Due notice is posted at each computer.
- Requests for on-demand map production will not be taken.
- Referrals for further assistance may be made to other GIS experts.
- Color printing is available, at no cost, for on-site users. Duplicate copies of the same map may not be produced using the printers.

2. Instruction (classroom and individual)

NCSU Affiliates

- The GIS Team may provide classroom instruction in the use of software packages in Levels 1 - 2.
- On-site, individualized assistance is available by appointment with a GIS Team member.
- Assistance for off-site users, e.g. via e-mail or telephone, will be provided as resources permit.

Non-NCSU Affiliates

- The GIS Team may provide classroom instruction in the use of software packages in Levels 1 - 2.

  Non-NCSU affiliates may be allowed to attend classroom instruction on a space-available basis.
- Appointments with a GIS Team member for individualized in-depth assistance will not normally be available to non-NCSU affiliates.
- Referrals may be made to other sources of GIS expertise in the community, e.g., NC Center for Geographic Information and Analysis (NC CGIA), State Library of NC, software vendors.

3. Digital Data Resources

- GIS Team members will identify and recommend for purchase Level 1 value-added data. On-site access will be provided.
- GIS Team members will identify and recommend for purchase, if necessary, value-added (e.g., ArcData) and public domain (e.g., TIGER and Census STF3A) geographic and attribute data that are used in Levels 2 - 3. If possible, on-site access will be provided.

NCSU Affiliates

- GIS Team members will assist researchers in identifying additional sources of value-added and public domain geographic and attribute data and, if possible, will acquire it and provide on-site access.

- Researchers may be provided with referrals to data clearinghouses, e.g., *International GIS Sourcebook*, NC CGIA, NASA, U.S.G.S., European Space Agency.

Non-NCSU Affiliates

- GIS Team members will assist in identifying additional sources of value-added and public-domain geographic and attribute data as staff resources permit.

- Referrals may be made to data clearinghouses, e.g., *International GIS Sourcebook*, NC CGIA, NASA, U.S.G.S., European Space Agency.

4. Other Resources

- GIS Team members will identify and recommend for purchase monographs, trade magazines, journals, videotapes and other media in the field of GIS.

GIS Team Members

The current team members are:

- Steve Morris, Librarian for Spatial & Numeric Data Services, Research & Information Services, 515-2936, spmorris@unity.ncsu.edu
- Carolyn D. Argentati, Head, Natural Resources Library, 515-2306, carolyn@unity.ncsu.edu
- Mary Ellen Spencer, Librarian, Research & Information Services, 515-2936, Mary_Ellen_Spencer1@library.lib.ncsu.edu
- Bryna Coonin, Librarian, Research & Information Services, 515-2936, bryna_coonin@ncsu.edu

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GEOGRAPHIC INFORMATION SYSTEMS (GIS) at Morris Library

WHAT IS GIS?

A GIS is a combination of software, hardware, and people capable of capturing, storing, manipulating, analyzing, and displaying spatially referenced data. Spatially referenced data refers to any data that has some type of location as a descriptive attribute. In most cases, location refers to any place in relation to the earth's surface.

WHY GIS IS HERE AT THE LIBRARY

GIS was first introduced to the library to interpret spatial data on CD Rom that was being received through the Government Documents program (3rd floor of the library). We have the capability to link any descriptive spatially referenced data to scanned images or a digitized set of points, lines, and/or polygons, then manipulate the linkage and display the results in text, charts, graphs, or maps. Since its introduction to the library, we have found probable use for GIS within every division reflecting the multi-disciplinary nature of GIS as a tool.

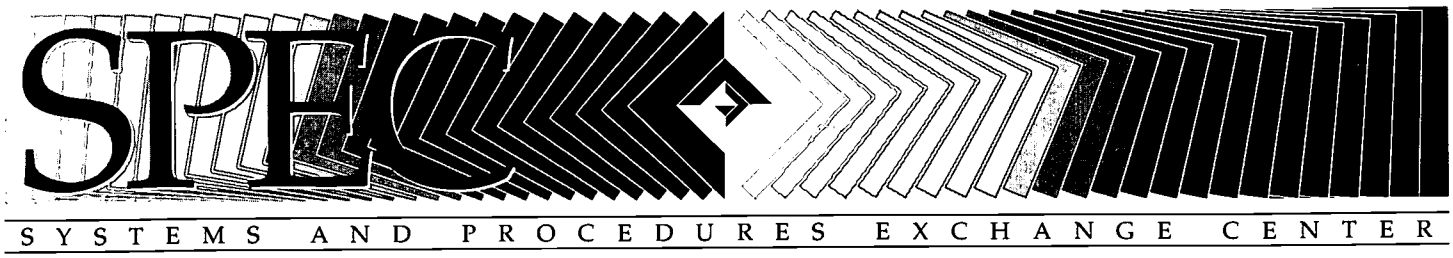
Within our facility, we have five public stations, a flatbed scanner, a large format color plotter, and letter size color printers. We use DOS, Windows, and UNIX based software. Most of our workstations are connected to the internet.

WHERE GIS IS LOCATED

Our current location is room 212, which is located on the second floor of Morris Library across from the main elevators. Our office hours are Monday thru Friday from 8:30am - 4:30 pm. We invite all faculty, staff, and students to investigate how GIS might assist you in your work, home, or hobbies. Stop by or contact Kevin Davie at (618) 453-1248.

D. Kevin Davie
Geographic Information Systems Coordinator
Library Affairs
Southern Illinois University-Carbondale
kdavie@twister.c-lib.siu.edu
October 19, 1994

Library Affairs, SIUC.



SELECTED READINGS

BOOKS AND JOURNAL ARTICLES

Cobb, David A., and Arlene Olivero. "Users Create Maps Online with the Massachusetts Electronic Atlas." *ArcUser* 1 (July–September 1998): 37–39.

The Massachusetts Electronic Atlas is a website hosted by the Harvard Map Collection where users can create, arrange, and download maps and data for the Commonwealth of Massachusetts. The origin of the Atlas, its system setup, available data, features, and users are well covered. The authors also suggest future directions for mapping technology in libraries.

Hawkins, Andrew. "GIS: Their Use as a Decision Support Tool in Public Libraries and the Integration of GIS with Other Computer Technology." *New World Library* 95, no. 1117 (1994): 4–13.

Hawkins describes a study that determined the use and needs of GIS in English public libraries. His data indicates that little work was being done in this arena. He maintains that GIS can be used as a mapping service for reference and archive collections.

Journal of Academic Librarianship 23, no. 6 (November 1997).

This issue of *JAL* contains 10 articles on GIS. The topics include an overview, the role of GIS in academic libraries, online GIS services, managing, measuring use, intellectual property rights, and cooperative efforts. This issue is a follow up to a previous issue of *JAL* (volume 21, number 4) devoted to GIS. That issue gave an overview of GIS and included articles on GIS as a public service, collection development, and training.

Longley, Paul A., et al., eds. *Geographic Information Systems*. 2nd ed. 2 vols. New York: John Wiley & Sons, Inc., 1999.

This comprehensive, completely restructured and rewritten second edition portrays GIS in the late 1990s. Volume one covers principles and technical issues, and volume two management issues and applications for this fast-developing technical field. Like the first edition, it is an excellent reference book.

Smith, Linda C., and Myke Gluck, eds. *Geographic Information Systems and Libraries: Patrons, Maps, and Spatial Information*. Urbana, Ill: Graduate School of Library and Information Science, University of Illinois at Urbana-Champaign, 1996.

This title includes papers from the 32nd Annual Clinic on Library Applications of Data Processing, held at the Beckman Institute of the University of Illinois at Urbana-Champaign April 2–4, 1995. One of the contributors, Mark Monmonier, who wrote one of the initial books on GIS, gives an historical perspective on GIS. Cataloging issues are addressed in a series of papers, as are system design, requirements, and implementation policies in different types of libraries. This work offers a well-rounded and thorough analysis of the role of GIS in libraries.

Soete, George. *Issues and Innovations in Geographic Information Systems.* Transforming Libraries 2. Washington, D.C.: ARL Office of Leadership and Management Services, 1997.

The second in the new ARL Transforming Libraries series, this title looks at GIS and its role in libraries. Services, collections, staffing, training, and data storage are among the issues touched upon in this title. GIS developments in 20 libraries are highlighted. The conclusion explores the future of GIS.

Stone, Jennifer. "Geographic Information Systems." *Online* 22, no. 3 (June 1998): 65-70.

Stone provides a good introduction to Geographic Information Services (GIS) and its placement in libraries and role as a library service. She lists a number of valuable websites, including those that are used for mapping, data provision, and software. Most interesting is her description of GIS use; Stone examines the use of GIS in county government (King County, WA), an academic library (University of Washington), and the corporate world (Schlosser Geographic Systems, Inc.)

WEBSITES

Center for Mapping at The Ohio State University
<http://www.cfm.ohio-state.edu/>

Core Software Technology/ImageNet
<http://www/coresw.com/>

Department of Forest Resources, GIS and Remote Sensing Laboratory, University of Minnesota
<http://www.gis.umn.edu/>

Federal Geographic Data Committee
<http://fgdc.er.usgs.gov/>

Geo-Data for the San Francisco Bay Area
<http://badger.parl.com/>

Iowa Department of National Resources: Natural Resources Geographic Information System (NRGIS) Library
<http://samuel.igsb.uiowa.edu/nrgis/gishome.htm>

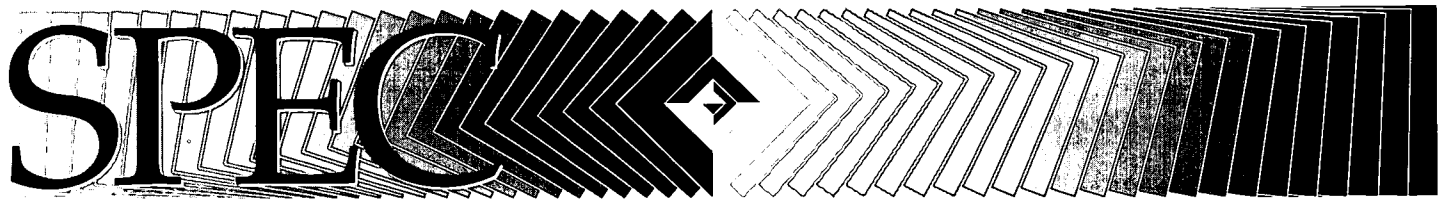
National Atlas of Canada
<http://www-nais.ccm.emr.ca/naisgis.html>

National Gap Analysis Program
<http://www.gap.uidaho.edu/gap/>

University of Edinburgh GIS WWW Resource List
<http://www.geo.ed.ac.uk/home/giswww.html>

U.S. Census Bureau
<http://www.census.gov/>

U.S. Geological Survey
<http://www.usgs.gov/>



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			____	SP200	2001: A Space Reality	____	SP150	Bldg Security & Personal Safety
			____	SP199	Video Collect & Multimedia	____	SP149	Electronic Mail
			____	SP198	Automating Preserv Mgt	____	SP148	User Surveys
			____	SP197	Benefits/Professional Staff	____	SP147	Serials Control/Deselection
			____	SP196	Quality Improve Programs	____	SP146	Lib Dev Fund Raising Capabilit
			____	SP195	Co-op Strategies in Foreign Acqs	____	SP145	Lib Publications Programs
			____	SP194	Librarian Job Descriptions	____	SP144	Building Use Policies
			____	SP193	Lib Develop & Fundraising	____	SP143	Search Proced Sr LibAdmin
			____	SP192	Unpub Matls/Libs, Fair Use	____	SP142	Remote Access Online Cats
			____	SP191	Prov Pub Svcs Remote User	____	SP141	Approval Plans
			____	SP190	Chang Role of Book Repair	____	SP140	Performance Appraisal
			____	SP189	Liaison Svcs in ARL Libs	____	SP139	Performance Eval: Ref Svcs
____	SP238	ARL GIS Literacy Project	____	SP188	Intern, Residency & Fellow	____	SP138	University Copyright
____	SP237	Managing Food and Drink	____	SP187	ILL Trends/Staff & Organ	____	SP137	Preservation Guidelines
____	SP236	TL 7: E Theses/Diss	____	SP186	Virtual Library	____	SP136	Managing Copy Cataloging
____	SP235	Collaborative Coll Managmnt	____	SP185	System Migration	____	SP135	Job Analysis
____	SP234	TL 6: Distance Learning	____	SP184	ILL Trends/Access	____	SP134	Planning Mgt Statistics
____	SP233	ARL in Extension/Outreach	____	SP183	Provision of Comp Print Cap	____	SP133	Opt Disks: Storage & Access
____	SP232	Use of Teams in ARL	____	SP182	Academic Status for Libns	____	SP132	Library-Scholar Communication
____	SP231	Cust Service Programs in ARL	____	SP181	Perf Appr of Collect Dev Libn	____	SP131	Coll Dev Organization
____	SP230	Affirmative Action in ARL	____	SP180	Flexible Work Arrangemts	____	SP130	Retrospective Conversion
____	SP229	Evaluating Acad Libr Dirs	____	SP179	Access Services Org & Mgt	____	SP129	Organization Charts
____	SP228	TL 5: Preserving Digital Info	____	SP178	Insuring Lib Colls & Bldgs	____	SP128	Systems File Organization
____	SP227	Org of Doc Coll & Svcs	____	SP177	Salary Setting Policies	____	SP127	Interlibrary Loan
____	SP226	TL 4: After the User Survey	____	SP176	Svcs for Persons w/Disabilities	____	SP126	Automated Lib Systems
____	SP225	Partnerships Program	____	SP175	Scholarly Info Centrs	____	SP125	Tech Svcs Cost Studies
____	SP224	Staff Training & Development	____	SP174	Expert Systems	____	SP124	Barcoding of Collections
____	SP223	TL3: Electronic Scholarly Pubn	____	SP173	Staff Recognition Awards	____	SP123	Microcomp Software Policies
____	SP222	Electronic Resource Sharing	____	SP172	Information Desks	____	SP122	End-User Search Svcs
____	SP221	Evol & Status of Approval Plans	____	SP171	Training of Tech Svc Staff	____	SP121	Bibliographic Instruction
____	SP220	Internet Training	____	SP170	Organization Charts	____	SP120	Exhibits
____	SP219	TL 2: Geographic Info Systems	____	SP169	Mgt of CD-ROM	____	SP119	Catalog Maintenance Online
____	SP218	Info Technology Policies	____	SP168	Student Employment	____	SP118	Unionization
____	SP217	TL 1: Electronic Reserves	____	SP167	Minority Recruitment	____	SP117	Gifts & Exchange Function
____	SP216	Role of Libs in Distance Ed	____	SP166	Materials Budgets	____	SP116	Organizing for Preservation
____	SP215	Reorg & Restructuring	____	SP165	Cultural Diversity	____	SP115	Photocopy Services
____	SP214	Digit Tech for Preservation	____	SP164	Remote Storage	____	SP114	Binding Operations
____	SP213	Tech Svcs Workstations	____	SP163	Affirmative Action	____	SP113	Preservation Education
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