

Create your own world

What's available with GIS

by Victoria Lynn Packard

Geographic Information Systems (GIS) is truly one discipline that displays the breadth and strength of the Internet. With a computer and access to the Web, a user has the ability to solve the problems of today and tomorrow. A user can create his or her own Utopia. GIS can be used by anyone; the environmentalist, city planner, demographic specialist, architect, and many others may benefit from it.

In performing an Internet search using the term "GIS," a user discovers a myriad of sites. Some sites contain one or two links and others have multiple links to a vast amount of excellent information.

The resources listed below are some that I use for Geography and GIS Internet training classes. I chose sites with a multitude of links to other areas. These sites cover such areas as government, education, and commerce. Included are resources for dictionaries, newsgroups, mail lists, and periodicals to show the spectrum of material available in GIS. So enjoy and have fun creating your world!

Dictionaries

As with any other discipline, GIS has its own terminology, abbreviations, and acronyms. Listed below are a few Internet sites that provide easy access to this information.

- **AGI GIS Dictionary.** This is the newest edition of the dictionary of GIS terms. It is located at the University of Edinburgh's Department of Geography and the Association for Geographic Information site. It contains 980 GIS and GIS-related terms and 52 diagrams. It

is searchable by four categories: alphabetical, category, acronyms, and terminology. *Access:* <http://www.geo.ed.ac.uk/agidict/welcome.html>.

- **GEONet-NIMA (National Imagery and Mapping Agency).** The GEONet Names Server (GNS) provides access to NIMA's database of foreign geographic feature names. Approximately 12,000 of the database's 3.3 million features are updated monthly with names and information approved by the U.S. Board on Geographic Names (US BGN). *Access:* <http://164.214.2.59/gns/html/index.html>.

- **Dictionary of Abbreviations and Acronyms in Geographic Information Systems, Cartography, and Remote Sensing.** *Access:* <http://library.berkeley.edu/EART/abbrev.html>.

Metadata sites

These sites are by nature very large and extremely detailed. They provide access points to GIS sites around the world. These sites are a mixture of commercial, government, and educational areas.

- **Nice Geography and GIS Sites.** This is a collection of geography-related sites all over the world. It is maintained by Utrecht University, The Netherlands. Sites in foreign languages are noted. It is a very large site (49.2K), but is divided into manageable sections that are easy to use and understand. Areas covered include GIS, Remote Sensing, demographic and population studies, and government statistical information. *Access:* <http://www.frw.ruu.nl/nicegeo.html>.

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• **Oddens's Bookmarks.** This Web site of massive proportions is available at Universiteit Utrecht. It is a branch of the aforementioned Web site, but in this area there are over 4,850 links available. Of these links there are approximately 700 electronic map sources, over 170 map collections, educational sources, GIS and geographic demos, and more. *Access:* <http://kartoserver.frw.ruu.nl/html/staff/oddens/oddens.htm>.

• **GIS/Cartography, Starting Points.** This site is located at the Department of Surveying and Mapping of the Norwegian University of Science and Technology (NTNU). Some of the information provided is on currently running systems, demos on GRASS and ArcInfo, educational pages, links to other world GIS sites, and upcoming conferences. *Access:* <http://www.iko.unit.no/gis/gisen.html>.

• **Edinburgh Geographical Information Systems (GIS).** This site is located and maintained in the Department of Geography at the University of Edinburgh. It provides information on all aspects of GIS, as well as providing a number of useful links to other servers worldwide. There is a link to GIS research being done in the United Kingdom. *Access:* <http://www.geo.ed.ac.uk/home/gishome.html>.

• **GInfoServer: WWW GIS-Resources.** This is a large, but well-designed Web site that has a many sources. It provides links to GIS-Software (commercial and free), GinfoServer for journals, books and bibliographies, conference information, and online proceedings. There are online literature databases, GIS, hydrology and bibliography standards, Digital Elevation Models (DEMs), metadata, and Environmental Information Systems. Other links are GIS textbooks, newsgroups and mailing lists, seminars, tutorials, and other educational information. Job Sites, FAQs, and links to other GIS-Servers are also included. *Access:* <http://www.geo.uni-bonn.de/members/haack/gisinfor.html>.

• **UC Berkeley Guide to GIS Resources on the Internet.** This site that covers many aspects of GIS and related topics. A few of these areas are general directories, special and related topics, federal, state, and international data sources, GIS tutorials, bibliographies, publications, and jobs. The site also includes course listings for the university. *Access:* <http://library.berkeley.edu:80/UCBGIS/gisnet.html>.

Government and commercial sites

GIS covers a wide spectrum of the Internet. A searcher may begin at a government site and, in following a link, will next find him or herself at a commercial or educational location.

• **Geographic Information Systems—GIS.** This site is a part of the USGS Web site and a node of the National Geospatial Data Clearinghouse. It contains the *Manual of Federal Geological Data Products* and links to other govern-



ment geological/environmental Web sites. It provides examples of practical applications of GIS. *Access:* <http://www.usgs.gov/research/gis/title.html>.

• **GIS Frequently Asked Questions and General Info List Index.** Here questions and information are compiled from newsgroups, mail lists, current research, and commercial and academic sites. It answers technological questions, provides software ratings, and contains an archive. *Access:* <http://www.census.gov/gis/gis/faq-index.html>.

• **Montana State Library Geographic Information System.** The Montana Natural Resource Information System (NRIS) Geographic Information System (GIS) acts as a clearinghouse for GIS databases and provides services to state, federal, private, nonprofit, public groups, and individuals needing access to GIS technology. *Access:* <http://nriss.mt.gov/gis/gis.html>.

• **Geo Info Systems Online.** This site contains information and links to many areas of GIS. Some of these links are hardware and software, education and research centers, GIS/GPS mail lists and newsgroups, Remote Sensing, and GIS U.S. Government Agencies. *Access:* <http://www.geoinfosystems.com/resource.htm>.

• **Harvard Design & Mapping.** Available since 1994, this site has over 700 links related to GIS and mapping sites. Some of these links are U.S. Federal Government agencies, GIS companies, international government agencies, books, and conferences. There are links to research from colleges, universities, and institu-

tions in the United States. They also provide a "Site of the Month." *Access:* <http://www.hdm.com/gis3.htm>.

- **Harper Collins Cartographic Home Page.** This is the site of the Harper Collins, Bartholomew, and Times publishers. It has three main divisions: map and atlas publishing, contract map specialists, and geographic data providers. There are many links to cartography, geography, and GIS sites. *Access:* <http://www.harpercollins.co.uk/maps/>.

- **Desktop GIS: Latest Versions Add Web Integration, Development Tools.** This is a review site for GIS software. *Access:* <http://www.fcw.com/pubs/gbb/1998/0302/GBB-gis-3-2-1998.html>.

Specialty sites

The sites listed here are limited to a specific aspect of GIS and have links to other sites in these same areas.

- **ESRI GIS Solutions for Everyone.** ESRI is a commercial world leader in GIS software and technology. It offers a large variety of related resources. This site features free GIS software, ArcInfo 7.2.1, demos,

pose GIS for the study of classical Greece. The site also provides links to collections, software, data, maps and gazetteers, online reports and documents, discussion lists, and conferences. *Access:* <http://perseus.holycross.edu/PAP/General/Resources-GIS.html>.

GRASS

This site provides a public domain release of GRASS 5.0 (Geographic Resource Analysis Support System). The U.S. Army Construction Engineer Research Lab developed it. Currently, Baylor University is the official site of research



and development for GRASS. GRASS is a public domain GIS package, which is available on many platforms. There are application demos, links to other GIS sites, *GIS WORLD*, and other geospatial data/metadata information. See the next site for more GRASS information. *Access:* <http://www.baylor.edu/~grass/>.

Introducing GRASS-XMI

Version 1.3 of GRASS-XMI will support many more GRASS programs than the previous version. GlomP-Z is a state of the art, full-featured field mapping and data management system designed to run on a standard laptop computer. GlomP-Z lets you display, edit, and manipulate digital maps and images. These include vector GIS data in the USGS DLG, AutoCad DXF and ArcView formats, and images such as AVHRR (Advanced Very High Resolution Radiometer), Landsat MSS and TM, SPOT, and a variety of airphotos. *Access:* <http://www.gpz.com/>.

LandView III

LandView III is a mapping system that creates maps showing 1990 census population and U.S. Environmental Protection Agency (EPA) data on super fund and hazardous waste sites for local communities. It is a detailed network of roads, rivers and railroads (based on TIGER/Line 95), jurisdictional and statistical boundaries, EPA-regulated sites, and key geographic features of the United States provided by the U.S. Geo-



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conference information, training, and a map gallery. *Access:* <http://www.esri.com/base/gis/index.html>.

- **Japan GIS/Mapping Sciences Resource Guide.** This is the second edition of the Japan GIS/Mapping Sciences Resource Guide. It is not a commercial site. It is designed as a comprehensive source for Japanese GIS and mapping information with links to other sources. The site is in English. *Access:* <http://www.cast.uark.edu/jpgis/>.

- **Perseus Atlas Project.** The Perseus Atlas Project is an effort to build a collection of databases focused on classical Greece. It is supported by the College of the Holy Cross in Worcester, Massachusetts; Bates College in Lewiston, Maine; Tufts University in Medford, Massachusetts. The project is developing a general-pur-

logical Survey and other federal agencies. It is distributed on 11 CD-ROMs. LandView III provides access to more than 50 different 1990 census, economic, and demographic statistics. The user can customize the map to show different amounts of detail. *Access:* <http://www.census.gov/apds/pp98/pp.html>. To download individual files: <http://www.census.gov/geo/tiger>.

- **DLGV32 DLG-O Viewing Software dlgv32 and dem3d Software Links.** This site contains links to software for viewing U.S. Geological Survey digital map products. These programs are derived from USGS data and research software. The public versions of this site are for viewing USGS digital data. They have no editing or analysis functions. All software and data in this site are public domain. *Access:* http://mcmweb.er.usgs.gov/viewers/dlg_view.html.

Searchable sites

Listed here are some GIS sites that are searchable by criteria. They provide information regarding scholarly research, land surfaces, and other demographic data important to GIS users.

- **Infomine Scholarly Internet Resource Collections.** This is a map and GIS search screen maintained by the University of California. Keyword, subject, title, and contents can be used to search this site. The site covers both academic and commercial Web pages. *Access:* http://lib-www.ucr.edu/search/ucr_mapsearch.html.

- **Earth Science Data on the Global Land Information System (GLIS).** GLIS is an interactive computer system developed by the U.S. Geological Survey (USGS) for scientists about the earth's land surfaces. GLIS contains abstract, description, and search information for each data set. Some of these digital data sets are cartographic, climate, elevation, geologic, hydrologic, landuse/landcover, satellite and aerial, soils, and photographs. *Access:* <http://edcwww.cr.usgs.gov/webglis>.

- **CIESIN-SEDAC's: GIS Format Conversion Service.** This site provides digital coverage of U.S. census demographics to GIS users. Atlas GIS, ARC/INFO, and MapInfo formats are supported. DDCarto and DDViewer are two very large links within this site. There are many other interactive sites with downloadable data. The data is provided freely for research and instruc-

tional use only. GIS files are stored in Atlas GIS export format. Converting to Arc/Info or MapInfo format is done overnight. *Access:* <http://plue.sedac.ciesin.org/plue/>.

- **GISlinx categorized list of GIS sites.** This is a large, multi-layered site divided into 30 sections. Some of the areas are software, publications, jobs, GIS indices, user groups, newsgroups, GIS events, education/research, and advertising information. There are also divisions of commercial and government sites in the United States and Canada. This site will allow you to submit a URL to your own Web site. *Access:* <http://www.gislinx.com>.

Remote sensing sites

In many of the previous GIS sites there are links to Remote Sensing. The following sites are specifically for Remote Sensing.

- **Remote Sensing Laboratory (RSL).** This is a primary access point for several RSL-based Internet projects. It provides links to the "GIS Jobs Clearinghouse," the mailing list archives of "ESRI-L and IMAGRS-L," and other mail lists. *Access:* <http://www.gis.umn.edu/>.

- **Remote Sensing and GIS—U.S. Bureau of Reclamation—Denver, Colorado.** The Reclamation Remote Sensing and Geographic Information Group was organized in 1975. Some of the projects are Upper Colorado Basin Irrigated Lands, Glen Canyon Environmental Studies, Animas-LaPlata Wetland/Riparian Vegetation Classification and Inventory, and NEXRAD Radar Calibration for Snow. General GIS information includes: Reclamation's Mid-Pacific Region, Draft guide for the Implementation of the Content, Standards for Geospatial Metadata, Denver Office Archive Library. Additional Web links are the Upper Colorado Regional Office, Great Plains Regional Office, Mid-Pacific Regional Office, Pacific Northwest Regional Office, and the World Data Center. *Access:* <http://www.rsgis.do.usbr.gov/>.

Jobs

Many Internet employment sites provide limited information on GIS jobs. Here are five sites that are specifically for GIS jobs that can be searched by geographic location or types of GIS jobs all over the world. They provide information on job postings, help with resumes, and interview techniques.

• **GIS Jobs Clearinghouse (GJC).** The GJC was started to help consolidate GIS/IP/GPS position announcements in one easy-to-use place. It was opened in late May 1994. Job postings are held for three months and a number of them are vendor-based postings. There are links to many other sites in the United States and Europe. These links cover such areas as resume writing, interview techniques, and FAQs. *Access:* <http://www.gis.umn.edu/rsgisinfo/jobs.html>.

• **GeoWeb Interactive.** This commercial site is an interactive job Web site for Information Technology and Geo Science/Engineering. It has job postings, resumes, and various job information. *Access:* <http://www.ggrweb.com/job.html>.

• **Cyber-Sierra Natural Resources Job Search.** This site contains multiple links to other job sources. Some of these links are in the private sector, government jobs, and international. *Access:* <http://www.cyber-sierra.com/nrjobs/gis.html>.

• **GeoJob Source.** This site contains job listings internationally. It is searchable by region, posting date, and job title. Electronic and print versions of the job listing are available by subscription. *Access:* <http://www.geojobsources.com/regionindex.htm>.

• **State of West Georgia Government Jobs.** This site contains links to the GIS Job Clearinghouse, Online Career Center, ESRI, and ERDAS. There are also links to related subject sources such as resume preparation and interview techniques. *Access:* <http://mslismpa.tamu.edu/staff/gis3.html>.

GIS newsgroups—periodicals—mail lists

Newsgroups, periodicals, and mail lists are well known on the Internet. Listed below are some large and easily accessible job sites specifically for GIS.

• **GinfoServer.** This is a metadata list of newsgroups and mailing lists for GIS from the University of Bonn. It covers individual discussion groups, newsgroups, and professional business sites. *Access:* <http://www.geo.uni-bonn.de/members/haack/gis-newsgroup.html>.

• **Online Resources for Earth Scientists—ORES.** The University of South Carolina has compiled a list of geography and GIS journals and newsletters. Some of these are *GeoInfo Sys-*

tems Magazine, Electronic Atlas Newsletter, and AAG GIS Special Group Newsletter. *Access:* <http://www.csn.net/~bthoen/ores/gis/journals.html>.

• **The Center of Mapping at the Ohio State University.** This site provides links to industry, Remote Sensing Global Positioning Systems, mobile mapping, and periodicals. Some of these periodicals are *GeoInfo Systems, GIS World, and GPS World.* *Access:* <http://www.cfm.ohio-state.edu/links/industry.html>.

• **International Institute for Aerospace Surveillance and Earth Science—ITC.** This is a large site that contains many U.S. and international journals. It covers GIS, Remote Sensing, Photogrammetric Engineering, earth science, and many other areas. *Access:* <http://www.itc.nl/~bakker/journals.html>.

• **GIS Discussion Groups & Lists.** This is an alphabetic list of GIS mail lists. It is a large site that includes subscription information and Webmaster names and their URLs. *Access:* <http://home.earthlink.net~rpminfonet/gislist.html>.

Map galleries

There are many atlases being mounted on Internet servers now. Here are some atlases available for the larger American cities. They provide statistical and census data. A few even provide links to state sites with more detailed demographic information.

• **GIS: Map Gallery. Dept. of Transportation—Bureau of Transportation Statistics.** This site contains four divisions of maps: National transportation analysis regions, transportation statistics annual report, interstate commodity shipments, and the American Travel Survey. There are links to conferences, discussion groups, geo-spatial data, and state sites. *Access:* <http://www.bts.gov/gis/maps/>. ■

Read more about GIS

An expanded version of this article is available on the Web at <http://www.ala.org/c&rlnew2.html>. Several other articles in our Internet Resources series also have expanded versions posted there.

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