1998 Oklahoma ARC User Conference

September 17, 1998
Metro Tech Business Conference Center
Oklahoma City, Oklahoma

OKLAHOMA CHAPTER-SOUTH CENTRAL
arc user group

Exhibitors

Analytical Surveys, Inc.

Applied Field Data Systems

Azteca Systems, Inc.

CAD Technical Imaging

CarteGraph Systems, Inc.

The CEDRA Corporation

Data General Corporation

ESRI

Geo Information Systems

M.J. Harden Associates, Inc.

Laser Specialists, Inc.

Midwest Architects & Engineers Supply, Inc.

SDS, Inc.

Topographic Mapping, Inc.

Whitestar Corporation

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1998 OKLAHOMA ARC USER CONFERENCE

SOUTH CENTRAL ARC USER GROUP
OKLAHOMA CHAPTER

September 17, 1998
Metro Tech, Oklahoma City

Greetings:

We are very pleased you are attending the second annual conference of the Oklahoma Chapter of the South Central ARC User Group and hope you find the conference informative. This year the conference has grown to include user presentations and vendor exhibits.

We wish to sincerely thank the ESRI San Antonio Office for the many contributions they have made to this conference: the staff, equipment and the prizes for the user presentations and posters. The Regional Group also provided support and encouragement for our second state conference. We especially thank the corporations who support this event.

Look forward to next year's Oklahoma ARC User Conference.

Sincerely,
The Steering Committee
Sara Cobb
Rich Davis
Jann Hook
Scott MacKelvie
Rachel Noon
Al Rea
Jayne Salisbury

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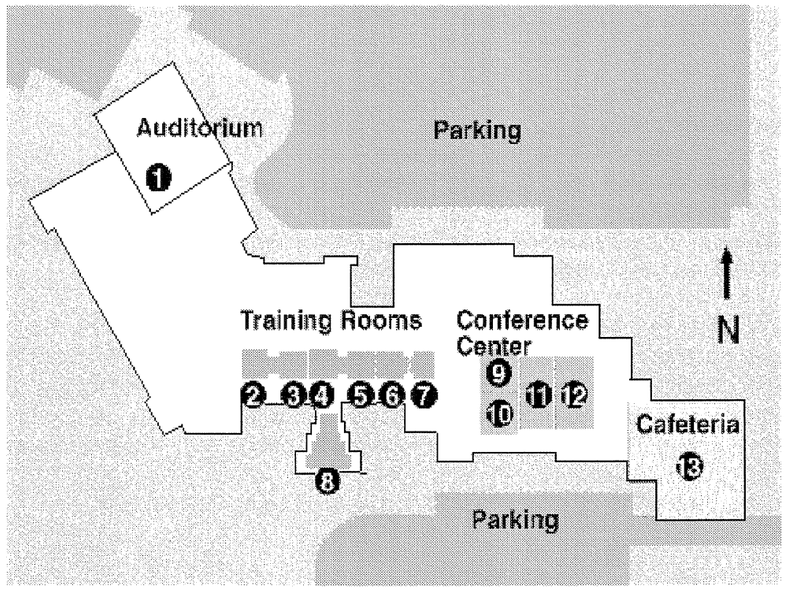
Map of Metro Tech



3 Blue Room
4 Forest Room
8 Garden Room
9 Alpine (Exhibit Hall)
10 Calypso (Exhibit Hall)
11 Big Dipper
12 Carousel

NOTES

South Central ARC User Group * Oklahoma Chapter

1998 Oklahoma ARC User Conference

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Agenda-at-a-Glance

8:00	**Registration** opens with Vendor Exhibits and Poster Displays		
8:30 - 8:40	**Welcome** ***Carousel***		
9:00 - 11:30	**Doctor's Office** ***Blue Room***		
	ESRI Session I ***Auditorium***	**ESRI Session II** ***Garden Room***	**User Presentations** ***Forest Room***
9:00 - 9:50	What's New in ArcView 3.1	Open Development Environment(ODE)	Geospatial Data Distribution in Oklahoma – Where do we go from here?
10:10 - 11:00	Arc/FM	ArcView Extensions IMS, Tracking and Network	Using GIS in Lake Turbidity Source Determination and Water Shed Condition Analysis in Lake Atoka The National Hydrography Dataset for Oklahoma
11:10 - 11:30	**Poster presentations** by authors		
11:15 - 12:30	**Lunch** (provided) featuring Table Topics on Education, Census, GPS, MetaData and more ***Carousel***		
12:45 - 1:45	**Keynote address** ESRI's Product Direction by Clint Brown, Director of Software Products, ESRI ***Auditorium***		
2:00 - 3:30	**Doctor's Office** ***Blue Room***		
	ESRI Session I ***Auditorium***	**ESRI Session II** ***Garden Room***	**User Presentations** ***Forest Room***
2:00 - 2:50	Spatial, Image and 3D Analyst	Arc SDE	GIS Accessibility to Non-GIS Personnel ArcView Based Engineering
3:10 - 4:00	Arc/Info 8.0, The Road Ahead - Clint Brown	MapObjects and Templates	Implementing SDE Parcel Maintenance Made Easy Using pARCel mAPPer
4:05 – 4:15	**Closing** Participant Awards and Door Prizes ***Auditorium***		

KEYNOTE SPEAKER

R. Clint Brown
Director, Software Products
Environmental Systems Research Institute, Inc. (ESRI)

Specific Responsibilities

Joined ESRI in 1983. Responsible for managing all ESRI product design and release teams, including ARC/INFO, ArcView, MapObjects, SDE, AtlasGIS, ArcCAD, and PC ARC/INFO. Also responsible for product design, development and release of quality products and manages a division of GIS analysts, programmers, writers, and test analysts who build, release and maintain ESRI software.

Past Experience

Before coming to ESRI, served as ADP coordinator for refuge planning for the U.S. Fish and Wildlife Service in Anchorage, Alaska. Work there included coordinating the development of a GIS for refuge planning for 75 million acres on sixteen national wildlife refuges in Alaska. Among other duties were training, coordination with federal and state agencies, land use planning, and modifying the technology for GIS applications to planning.

Also served as a biostatistician with the U.S. Fish and Wildlife Service in Fort Collins, Colorado, working on procedures for the estimation of environmental impacts on fish and wildlife resources. Helped to develop the Habitat Evaluation Procedures now used throughout the Service.

Employed as a research and teaching assistant at the Institute of Statistics at Texas A&M University. Applied statistics and computer programming techniques to environmental management and natural resource evaluation.

Educational Information

Graduate Course Work in Ecosystems Modeling, Colorado State University, Fort Collins, Colorado, 1979-1980.

M.S. (Statistics and Computer Science) Texas A&M University, College Station, Texas, 1978.

B.S. (Economics and Statistics) Southern Methodist University, Dallas, Texas, 1975.

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Session Descriptions

9:00 - 9:50	*Auditorium*	**What's New in ArcView 3.1** Overview and demonstration of ArcView GIS Version 3.1 including new wizards and tools, fixes and improvements, and new core extensions. Will also provide an overview of new, optional extensions for ArcView, as well as general information on availability and support.
9:00 - 9:50	*Garden Room*	**Open Development Environment (ODE)** An overview of ODE and how it offers new ways for developers to use ARC/INFO functionality. Platform issues will be discussed, as well as the variety of development environments you can use with ODE. Advantages and disadvantages of various approaches will be considered. ODE opens the door to virtually any modern development environment on both UNIX and Windows NT platforms.
9:00 - 9:50	*Forest Room*	**Geospatial Data Distribution in Oklahoma – Where do we go from here?** See User Abstracts for Detailed Description of Session
10:10 - 11:00	*Auditorium*	**Arc/FM** Arc Facilities Manager is a powerful new ARC/INFO-based application for the editing, maintenance, modeling, and data management of utility information. Learn the basics of using these new powerful tools in your organization. Also learn how to use our new RuleBase Engine to customize your database for use inside ArcFM.
10:10 - 11:00	*Garden Room*	**ArcView Extensions IMS, Tracking and Network** An overview of three extensions available for ArcView through a demonstration of functional capabilities and practical applications: routing, tracking analysis and putting mapping and GIS applications on the Internet with Internet Map Server.
10:10 - 11:00	*Forest Room*	**Using GIS in Lake Turbidity Source Determination and Water Shed Condition Analysis in Lake Atoka** **The National Hydrography Dataset for Oklahoma** See User Abstracts for Detailed Description of Session
2:00 - 2:50	*Auditorium*	**Spatial, Image and 3D Analyst** An overview of three extensions that support surface modeling, three-dimensional shapes and visualization, and image processing and analysis all within the easy-to-use ArcView interface.
2:00 - 2:50	*Garden Room*	**Arc SDE** An introduction to what Spatial Database Engine software is, a high-level overview of how it works, why it is important/useful, how it can be used via ESRI client products, what platforms and RDBMSs are supported, and how Version 3.0 will be packaged.
2:00 - 2:50	*Forest Room*	**GIS Accessibility to Non-GIS Personnel** **ArcView Based Engineering** See User Abstracts for Detailed Description of Sessions
3:10 - 4:00	*Auditorium*	**Arc/Info 8.0, The Road Ahead - Clint Brown** An in-depth look at the next major release of ARC/INFO. Focusing on two main goals---ease of use and continued support for advanced GIS functions---Version 8 represents the next generation of professional GIS with many exciting capabilities. This session provides an overview of the changes and a discussion of the road map for future ARC/INFO development.
3:10 - 4:00	*Garden Room*	**MapObjects and Templates** An introduction to components and discussion of the MapObjects component architecture, what functionality it provides to developers, and how it is used.
3:10 - 4:00	*Forest Room*	**Implementing SDE** **Parcel Maintenance Made Easy Using pARCel mAPPer** See User Abstracts for Detailed Description of Sessions

Abstracts of User Presentations

Geospatial Data Distribution in Oklahoma: Where do we go from here?

Alan Rea[1], Jayne M. Salisbury[2], and Robert Springer[3]

The authors would like to lead an open discussion on strategies for geospatial data distribution in Oklahoma. The Digital Atlas of Oklahoma was the first major attempt at widespread statewide geospatial data distribution in Oklahoma. The Digital Atlas was successful in many aspects, yet fell short in other aspects. We are seeking feedback from all conference attendees on how (or whether) the Digital Atlas could be improved in a second edition, and how to approach the distribution of the rapidly growing collection of geospatial data for Oklahoma.

The Digital Atlas was the first step in a long process to provide widespread public access to the growing collection of geospatial data for Oklahoma. A questionnaire will be prepared to seek to define the lessons learned from the Digital Atlas experience and help design a strategy for geospatial data distribution in the future.

[1] P.E., Hydrologist, U.S. Geological Survey, 202 NW 66th St., Bldg 7, Oklahoma City, OK 73116, Tel (405) 843-7570 ext 4407, Fax (405) 843-7712, Email: ahrea@usgs.gov, http://wwwok.cr.usgs.gov/
[2] Director, Spatial and Environmental Information Clearinghouse, 201 Center for International Trade Development, Oklahoma State University, Stillwater, OK 74078, Tel (405)744-8433, Fax (405) 744-7673, Email: jsalis@seic.lse.okstate.edu
[3] GIS Specialist, Oklahoma Conservation Commission, 2800 N. Lincoln Blvd, Suite 160, Oklahoma City, OK 73105, Tel (405) 521-4831, Fax (405) 521-6686, Email: springer@occgis.state.ok.us

Plate Tectonic Reconstructions of Old Earth

Karen Michno[1] and Rachel Noon[2]

Geoscientists are always looking for tools to visualize the Earth millions of years ago. They are interested in sea floor spreading, plate tectonics, rifting, paleo magnetism, and environmental aspects of Old Earth.

Earth In Motion Technologies has engineered an ArcView Extension that renders this information on a global basis. Years of research have allowed them to make models based on individual plates rotating and moving with time.

This technology helps us determine where areas of sedimentary deposition may have occurred and if the rocks and the subsequent processes were favorable for oil and gas creation. When we see the paleoclimates and the land masses during geologic ages, we see where source rocks were deposited, and the paths of migration through time that oil and gas might follow.

[1] Phillips Petroleum Co., 1290 Plaza Office Bldg., Bartlesville, OK 74004, Tel (918) 661-1842, Fax (405) 661-0243, Email: kmmichn@ppco.com
[2] Phillips Petroleum Co., 1290 Plaza Office Bldg., Bartlesville, OK 74004, Tel (918) 661-9734, Fax (405) 661-0243, Email: rcn@ppco.com

Software: ArcView 3.0b and PaleoGIS extension
Hardware: Sun Ultra 1

Stream System Information for Arkansas River and Red River Basins

Saji Varghese[1]

This project incorporates stream system information for the entire state of Oklahoma in ArcView (GIS), in an effort to present data graphically and concisely in an efficient manner. The project includes coverages of stream systems, lakes, and gages. The project can be sub-divided into two (2) parts -

a. Coverage of stream systems that has attributes added from the Hydrological Investigation (HI) studies of the watershed in Oklahoma using historical gage data.
b. Hot linking the gage coverage from ArcView using avenue to connect to the gage data in the Internet to determine current flow at respective gages in real time.

Hydrologic Investigation studies subdivide the watershed based on the 11-digit Hydrologic Unit Codes (HUC). A group of these 11-digit HUC are classified as stream systems based on their stream/tributaries origin, properties and configuration. With known historical gage data (source: USGS) and stream system areas, amount of water available in each stream system in its naturalized condition without the effect of any withdrawals (permitted users) can be determined. This amount of water is called Total Estimated Available Water (TEAW). The total SCS and other storage/yield is subtracted from the above determined TEAW to get the adjusted amount of total estimated available water (adj TEAW). This information was added to the attribute table of the stream system coverages. The attributes of gage coverage includes priority ranking, along with gage information.

Hot linking the gage coverage to the Internet was done using a Avenue script. This setup allows the end user to look for current flow in gages statewide. There are at present about 135 gages in the stream gaging network, most of which are mounted by data collection platforms (DCP) that transmit the information on flow and stage height of a river, from a remote location to a database maintained by USGS, which is ultimately put on the Internet. These gage data are updated approximately every 4 hours and are checked for quality by USGS personnel.

[1] Oklahoma Water Resources Board, 3800 N. Classen Blvd., Oklahoma City, OK 73118, Tel (405) 530-8800, Fax (405) 530-8900, Email: svarghese@owrb.state.ok.us
Software Used: ArcView, Avenue, Lotus123, WordPerfect

Using GIS in Lake Turbidity Source Determination and Watershed Condition Analysis in Lake Atoka, OK

Timothy K. Cannon[1]

An investigation of the water quality of Lake Atoka was undertaken by Cross Timbers Forestry and Spear & McCleab, Inc. Under contract to the Oklahoma City Water and Wastewater Utilities Trust. Lake Atoka is a major water source for the City of Oklahoma City and isolated in Southeast Oklahoma. Lake Atoka has had a serious turbidity problem for the last 25 years. This study was intended to establish the causes and sources of the turbidity and recommend solutions. Arc View 3.0 was utilized on a platform of 233 MHz, Pentium II, MMX with a Cal comp Digitizing Board. Soils data, geologic data, and current land use were mapped for the entire watershed at the scale of 1:24,000. Lake water samples were taken from the lake, located using a GPS receiver, and plotted in the system. The lake chemistry was homogenous and revealed a colloid faction as the primary cause of the turbidity. The GIS organized information was used to isolate soils and geology that could contribute this colloid faction to the water. This information was then grouped as sub watersheds and the streams of each sub watershed examined. Streams having high colloid content were shown to originate in the sub watersheds having this soil types and having high degree of land disturbance. Recommendations were made to reduce the inflow of this colloid material by land practice reform and revegetation.

[1] Owner, Cross Timbers Forestry, Registered Forester #164, State of Oklahoma, P.O. Box 440, Tecumseh, OK 74873, Tel (405) 598-6146, Fax (405)598-3434, Email: Cannonone@AOL.com

Hardware used: Pentium II, 233, MMX, Cal comp 30"x40" digitizing board
Software used: Arc View 3.0

The National Hydrography Dataset for Oklahoma

Joel R. Cederstrand[1] and Thomas G. Dewald[2]

The National Hydrography Dataset (NHD) is the culmination of a cooperative effort by the U.S. Environmental Protection Agency (USEPA) and the U.S. Geological Survey (USGS). The NHD combines the best of the USEPA River-Reach File version 3.0 (RF-3) and USGS Digital Line Graph (DLG) hydrography files: hydrologic ordering, hydrologic navigation for modeling applications, unique reach-identification codes from the RF-3, and the spatial accuracy and comprehensiveness of DLG hydrography. Based on 1:100,000-scale data, the NHD is designed to incorporate and encourage the development of higher- resolution data. Once completed and available, the NHD will greatly enhance the quality of digital hydrographic data for Oklahoma. This paper presents an overview of the NHD, its availability, and applications.

[1] U. S. Geological Survey, 202 NW 66th ST, BLDG 7, Oklahoma City, OK 73116 Tel 405-843-7570, Fax (405) 843-7712, Email: jrceders@usgs.gov
[2] U. S. Environmental Protection Agency, USEPA, Office of Water, Washington, D.C., Tel (202) 260-2488, Email: dewald.tommy@epamail.epa.gov

GIS Accessibility To Non-GIS Personnel

Teri Landrum [1]

As the Information Services Division of the City of Arlington Water Utilities Department has grown, the need to provide our customers with access to geographically reverenced data has became a priority. Since the majority of our customers are internal, a plan was developed to make GIS data accessible to on-GIS personnel from their desktop. A pilot application was developed that allowed water lab personnel to analyze the spatial distribution of water quality concerns. Another application was originally created for field crew personnel to access date in the GIS database that is now a required entry on work orders. That application has evolved into a tool that is now being utilized throughout the city every day. This presentation will summarize the process, problems and successes that are being experienced as we strive to accomplish our goals. Emphasis will be placed on implementation and training.

[1]City of Arlington Water Information Services, 101 West Abram Street, Mail Stop #01-0203, Arlington, Texas 76004-0231, Tel. (817)459-6600, Email: tlandrum@why.net

ArcView Based Engineering Applications

Constantine N. Tonias[1] **and Elias C Tonias**[2]

Born out of the need to merge GIS and CADD technologies, ***ArcView*** based CEDRA software, ***AVcad, AVcogo, AVparcel, AVsand*** *and* ***AVwater****,* have been developed. Operating in a Windows, NT or Unix environment, these software enable engineers to work in their native environment of surveying and engineering design of site, street, roadway, sewer and other projects, and have direct access to the querying and database handling routines of a **Desktop GIS**.

A city's engineering department may access its geographic database using ***AVsand***, retrieve relevant sewer information to build the sewer's mathematical model. Pertinent data (inverts, material, sizes, etc.), if not available in the database can be introduced by engineering staff in its accustomed way to update the database without burdening the GIS or MIS department. Land parcel and use information and/or water consumption may be extracted from the database to develop the sewer load model and perform hydraulic analyses to identify capacities and assess sewer performance. Similarly, ***AVwater*** may be called upon to perform the same type of operations for a water supply and distribution system.

AVparcel's addresses the needs for a variety of users' who are involved in the creation, editing and management of land parcel based databases, while that of ***AVcad*** and ***AVcogo*** provide, respectively, generic and extended geometric problem solution tools.

The bridging of GIS and Engineering-CADD technologies enable municipal owners to better inventory, operate, maintain. Plan, design and budget for sewer, drainage, water, street and other facilities. The merging of these technologies result in an effort to provide the end-user a truly unified database serving multiple disciplines.

[1] P.E., M.ASCE, President, the CEDRA Corporation, 65 West Broad St., Rochester, NY 14614, Tel (716) 232-6998, Fax (716) 2622042, Email cedra@cedra.com
[2] P.E., F.ASCE, Principal, Tonias Engineers, 65 West Broad St., Rochester, NY 14614

GPS Mapping of the Lake Arcadia Horse Trail

John Farley[1]

One of the many ways for gathering data for use in a GIS is through the use of Global Positioning System technology. The City of Edmond utilizes this technology to help build the City's GIS database. One such application of this technology was the creation of the Lake Arcadia Horse Trail map. This map was created by equipping a City of Edmond staff member with an all terrain vehicle, a GPS receiver and data collector. The City of Edmond staff member then rode the ATV along the proposed course of the Lake Arcadia Horse Trail. This data was subsequently downloaded and differentially corrected. After the data was corrected, it was then exported into a shapefile where it was then overlaid on existing base data.

This poster shows the integration of of GPS with GIS. The aerial map shows the Horse Trail as it was designed and collected using GPS equipment. The inset map shows the final display created for Lake Arcadia guests utilizing the new Horse Trail.

[1] City of Edmond, 100 E First St., Edmond, OK 73034, Tel (405) 359-4518, Fax (405) 359-7238, Email: jfarley@ionet.net

Software: Trimble Pathfinder Office, ArcView 3.0a, NT 4.0
Hardware: Trimble 4600LS GPS Receiver, Trimble Pathfinder Community Base Station, Compaq Pentium Pro 233 PC, HP 755cm DesignJet Color Plotter

Locations of U.S. Geological Survey Surface-Water and Ground-Water Sites in Oklahoma

Jason Masoner[1]

The U.S. Geological Survey developed and maintains the National Water Information System (NWIS), a distributed water information system that stores and retrieves hydrological data collected by the U.S. Geological Survey and its cooperators. The data are maintained on computers located at U.S. Geological Survey District offices nationwide. The Oklahoma District NWIS data base contains information on nearly 30,000 wells, springs, lakes, and streams. Data for these sites were collected as part of scientific investigations or monitoring that has taken place since the early 20th century. The number and type of observations at each site varies, ranging from a single water-level measurement in a well to decades of continuous streamflow measurement. Maps have been developed to provide an overview of the data base: one map shows surface-water sites, and the another shows ground-water sites. Sites were retrieved from NWIS and an ARC\INFO[2] coverage was constructed. The coverage contains 25,886 well sites, 598 spring sites, 727 lake sites, and 1,814 stream sites. The maps were made using ArcView[2], and two Views were built containing county boundaries, streams, lakes, and site coverages. An important use of these data would include a comparison of data collected at those sites with the draft of the state Clean Water Act Section 303d report showing surface-water bodies that have impaired water quality.

[1] U.S. Geological Survey, 202NW 63rd ST Building 7, Oklahoma City, OK 73116, Tel 810-4447, Fax (405) 843-7712, Email: jmasoner@usgs.gov
[2] The use of trade names is for descriptive purposes only, and does not imply endorsement by the U.S. Government.

Vulnerability of Major Aquifers in Oklahoma

Ed Eckenstein[1], Mike Sughru[2], Kevin Koon[3]

The relative vulnerability of 9 major aquifers in Oklahoma was computed using EPA's DRASTC model. This method provides a standardized way to rate aquifer vulnerability to surface contamination.

The USGS created the Arc/Info grid coverages for the seven DRASTIC layers: (d) depth to water, (R) recharge, (A) aquifer media, (S) soil media, (T) topography, (I) impact of the vadose zone and (C) hydraulic conductivity. The Oklahoma Water Resources Board computed the final DRASTIC scores and produced the vulnerability maps.

Each of the DRASTIC layers was assigned a rating from 1 to 10 based on a range of values for its physical characteristics. The ratings and a weighting factor for each layer were combined to compute the final DRASTIC index using the following equation: $D_r D_w + R_r R_w + A_r A_w + S_r S_w + T_r T_w + I_r I_w + C_r C_w$, where the subscripts "r" designate the rating and "w" the weight. The final score was computed using grid algebra in Arc/Info's GRID module.

The aquifers' mean DRASTIC index scores ranged from 96 (least sensitive) for the Central Oklahoma Aquifer to 156 (most sensitive) for the Eastern North Canadian Alluvial and Terrace. The bedrock aquifers have a lower drastic score and are relatively less vulnerable than the alluvial and terrace aquifers. This was as expected since alluvial and terrace aquifers are typically shallow, and are largely composed of permeable sand and gravel. The bedrock aquifers are typically deeper, and are composed of less permeable material.

[1] Oklahoma Water Resources Board, 3800 N. Classen Blvd., Oklahoma City, OK 73118, Tel (405) 530-8800, Fax (405) 530-8900, Email: eeckenstein@owrb.state.ok.us
[2] Oklahoma Water Resources Board, 3800 N. Classen Blvd., Oklahoma City, OK 73118, Tel (405) 530-8800, Fax (405) 530-8900, Email: mpsughru@owrb.state.ok.us
[3] Oklahoma Water Resources Board, 3800 N. Classen Blvd., Oklahoma City, OK 73118, Tel (405) 530-8800, Fax (405) 530-8900, Email: kqkoon@owrb.state.ok.us

Software Used: ARC/Info 7.1.2, ArcView 3.0a, ArcView Spatial Analyst

Implementing SDE

Peter C.G. Veenstra[1]

Spatial Database Engine (SDE) is a middleware extension to industry standard Relational Database Management Systems (RDBMS) for the analysis and storage of geographic data. SDE is a complex tool requiring in-depth knowledge and experience with relational databases and systems design. To properly implement SDE requires a specific skill set and a uniform approach to systems implementation. The presentation is a case study of some of the organizational and technical challenges involved in building, maintaining and managing a RDBMS-based SDE implementation. This presentation will review what SDE is and will present a decision tree to help organizations make an informed decision on how or when to implement SDE. The presentation will outline, in practical and technical terms, the steps taken to design and build a SDE database for CAD-based and GIS data storage. Specifically the challenges surrounding the decision to implement SDE, the specification of the database server running SDE, the preliminary database design, the physical design of the RDBMS, loading the data and the issues surrounding data retrieval using CAD tools and Arcview will be addressed. An overview of some of the skill sets required to implement SDE and how to acquire them will also be discussed. Organization managers and technical staff whom are struggling with the decision to implement SDE will find this presentation useful in helping them decide how and when to implement SDE.

[1]M.J. Harden Associates Inc., 1019 Admiral Blvd., Kansas City, MO, 64106, Tel. (816) 889-1153, Fax. (816) 471-1599, Email: pveenstra@mjharden.com

Software: Spatial Database Engine, SDE CAD Client
Hardware: 2300 Dell Poweredge Dual Pentium II Server

Parcel Maintenance Made Easy Using pARCel mAPPer

Mary Jo Fraley[1]

Are you looking for a way better way to maintain your cadastral data? This session focuses on pARCel mAPPer, an exciting new application developed in a Windows environment using ARC Macro Language. But this is no lightweight application. ARC/INFO and ARC COGO provide a robust software platform and the database transaction manager is supplied by Librarian. By providing an easy-to-use interface, pARCel mAPPer enables rapid and efficient accomplishment of routine tasks such as splits, joins, ownership changes and subdivision imports. Also, editing of any ARC/INFO feature type is supported in pARCel mAPPer (e.g., annotation, polygons, regions, lines, and points). Additional functionality includes the ability to handle multi-owner information and link to external databases. On the output end, pARCel mAPPer offers "what you see is what you get" (WYSIWYG) plotting capabilities and customizable plotting routines. PARCel mAPPer is easy to learn because it uses terminology that is familiar to mappers.

[1] SDS, Inc., 516 25th Street South ,Arlington, VA 22202, Tel (703) 836-8111, Fax (615) 794-5310, E-mail: mjfraley@sds-inc.com

Software: ARC/INFO, AML, Form Menus
Hardware: Pentium laptop with Windows NT

Abstracts of Poster Presentations

Use of Internet GIS Technology for Geographic Data Dissemination and Exploration: A case Study on the Oklahoma Digital Biological Atlas

Josephine Adams[1], May Yuan[2], and Ian Butler[2]

We are developing a new GIS framework to facilitate natural heritage inventory data integration and exchange in The Oklahoma Natural Heritage Inventory (ONHI). ONHI maintains a permanent, dynamic data bank that archives the characteristics, status distribution and occurrences of elements of natural biological and ecological diversity in Oklahoma. Originally, ONHI adopted methods developed by the Nature Conservancy for state natural heritage programs (Jenkins 1982). Element occurrences are manually plotted on USGS topographic quadrangles using plastic dots and locations are annotated with simple data files. As ONHI has grown with increasingly diversified data and users, the Nature Conservancy's traditional methods have become inadequate to support data management and information retrieval. We examine the characteristics of heritage information in Oklahoma with considerations to data and user requirements for query and mapping support. Based on our examination, we propose a GIS framework to integrate biological and geographical data for a much-improved facility to the modeling of heritage data and the utility of the data across a broad spectrum of users' interests. An easy to use graphical user interface will be developed in ArcView using Avenue and later integrated with the Internet using MapObjects. This will allow users to view, query, and map ONHI data via the Internet.

[1] Department of Geography, University of Oklahoma, 100 E. Boyd, SEC Rm 614, Norman, OK 73019, Tel (405) 325-5325, Fax (405) 325-6090, Email: josie@ou.edu
[2] Department of Geography, University of Oklahoma, 100 E. Boyd, SEC Rm 618, Norman, OK 73019, Tel (405) 325-4293, Fax (405) 325-6090, Email: myuan@ou.edu
[3] Oklahoma Biological Survey, University of Oklahoma, 111 E. Chesapeake St., Norman, OK 73019-0575, Tel (405) 325-7599, Fax (405) 325-7702, Email: ibutler@ou.edu

Software and hardware used: ESRI's ArcView 3.0, Avenue, Windows NT 4.0, UNIX Workstations

Crime Incident Hotspots

Officer Richard Bercher[1] and John Farley[2]

This poster will display crime locations that have been geocoded from a crime incident database. Each ¼ mile section of the City of Edmond is then analyzed. The ¼ mile sections having the highest crime incident activity are then highlighted for further analysis.

[1] City of Edmond Police Department, 23 E. First St., Edmond, OK 73034, Tel (405) 359-4438, Fax (405) 341-8519, Email: offbercher@iname.com
[2] City of Edmond, 100 E. First St., Edmond, OK 73034, Tel (405) 359-4518, Fax (405) 359-7238, Email: jfarley@ionet.net

Software: ArcView 3.0a, Windows 95
Hardware: Compaq Pentium 233 PC, HP 755cm DesignJet Color

1872 Pottawatomie County Survey

Stefanie Cannon[1]

This map was created using 42 Township maps of the original Pottawatomie county survey taken in 1872. All attributes shown on the original maps are shown on this poster.

[1] Cross Timbers Forestry, P. O. Box 440 Tecumseh, OK 74873, Tel (405)598-6146, Fax (405)598-3434, E-mail: Canonone@popd.ix.netcom.com

Software: ArcView3.0a
Hardware: Pentium 233 and Calcomp 3'x4' Digitizing Table

Measuring the effects of reservoir operations using GIS

Kenneth K. Cunningham[1], May Yuan[2] and Josephine A. Adams[2]

A six-year study is currently underway to investigate the potential impacts of favorable water level operations on the fisheries resources of Hugo Reservoir, Oklahoma. Critical to the successful evaluation of this project was determining the total area of fish habitat created by raising and holding the water level from a lake elevation of 404.5' (normal pool) to 409'. We acquired digital elevation and landcover information for the Hugo Reservoir area, and used Arc/INFO GIS procedures to digitize, integrate and analyze the data. For the 409' lake elevation level, a total of 1,826 acres of land were flooded, including 1,198 acres of forest, 411 acres of grasses, and 133 acres of shrubs and brush. In general, this increase in inundated vegetation represents a substantial benefit to the fisheries resources of Hugo Reservoir because all three of these classes of vegetation provide nursery habitat for juvenile fishes.

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