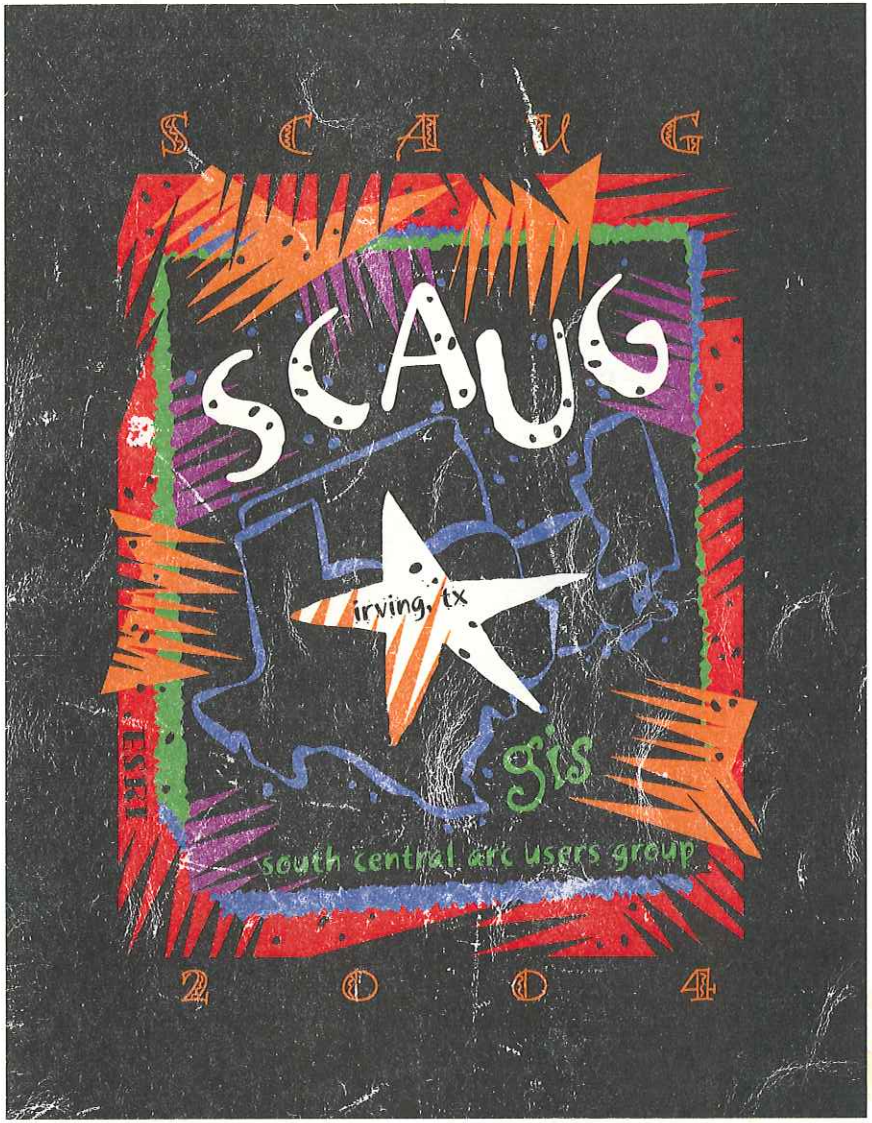
14th Annual User Conference



Conference Guide

Welcome to the 2004 South Central Arc User Group Conference!!! We have worked very hard to make this a FUN and INFORMATIVE event, so please take full advantage of what we have to offer. Meet some old folks and mingle with the many new faces of SCAUG. If you should have any needs during the conference, feel free to contact a SCAUG officer listed on the next page.

Special Thanks

A special thanks to these organizations for helping make this year's conference a success!

Bexar Appraisal District
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Mississippi Department of Marine Resources
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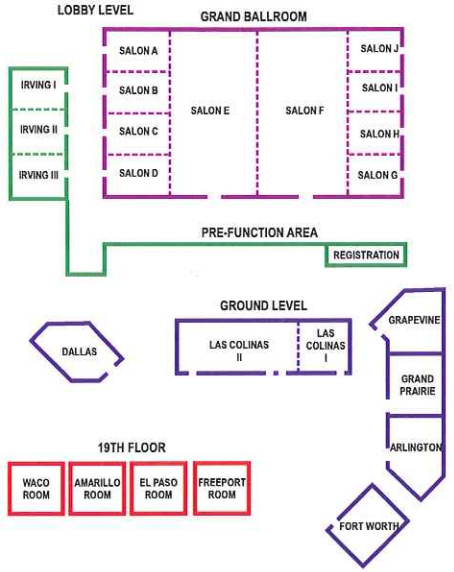

2004 South Central Arc User Conference

TRAINING - April 4th - April 6th

8:00am - 5:00 pm	Building Geodatabases 1	Fort Worth Room
8:00am - 5:00 pm	Introduction to ArcSDE (5th & 6th)	Grand Prairie Room

Building Geodatabases 1 (April 4-6)

This three-day course allows students to discover the capabilities of the geodatabase and how to migrate existing data to build a geodatabase for ArcGIS 8.3. This course addresses loading data into the geodatabase; defining appropriate topology rules; and maintaining data integrity through subtypes, attribute domains, and relationship classes. Participants learn how to create, use, edit, and manage spatial and attribute data stored in the geodatabase. This course is for spatial data managers who have a basic understanding of ArcGIS Desktop applications and are ready to use the geodatabase. New and existing data managers waiting to migrate to the geodatabase will also benefit from this course.

Introduction to ArcSDE using ArcInfo (April 5-6)

Understanding the architecture and fundamental concepts of ArcSDE® software and storage structures forms the foundation of your ArcSDE experience. This two-day course examines ArcSDE clients, servers, and the underlying database management system (DBMS). Participants view and query layers in an ArcSDE database using ArcCatalog and ArcMap, and create new ArcSDE layers by loading existing, file-based geographic data sources, such as shapefiles, coverages, and images, into an ArcSDE server. This course is for GIS and DBMS users who need to become proficient end users of an ArcSDE geodatabase. GIS managers who oversee ArcSDE database implementation also benefit from this course by achieving an understanding of how a healthy system functions. Topics from this course are included throughout the ArcSDE administration courses. Participants who have taken any ArcSDE administration course do not need to attend this class.

DAY ONE - Wednesday, April 7th

8:00 am - 8:00 pm	Vendor Hall	Salon F
8:00 am - 10:30 am	Opening Breakfast	Salon E
11:00 am - 12:30 am	User Presentations Session I	Lobby Level
12:30 pm - 2:00 pm	Lunch on your own	
2:00 pm - 3:30 pm	User Presentations Session II	Lobby Level
3:30 pm - 3:45 pm	Afternoon Break	Salon F
3:45 pm - 5:15 pm	User Presentations Session III	Lobby Level
5:15 pm - 7:30 pm	Map Gallery & Application Contest	Salon I & J
5:15 pm - 8:00 pm	Vendor Reception	Salon F

DAY TWO - Thursday, April 8th

8:00 am - 4:00 pm	University Competition	Fort Worth Room
8:00 am - 4:00 pm	ESRI Doctors Office	Salon I & J
8:30 am - 10:00 am	ESRI Technical Session I	Lobby Level
10:00 am - 10:30 am	Morning Break	
10:30 am - 12:00 pm	ESRI Technical Session II	Lobby Level
12:00 pm - 1:30 pm	Lunch on your own	
1:30 pm - 3:00 pm	ESRI Technical Session III	Lobby Level
3:00 pm - 3:30 pm	Afternoon Break	
3:30 pm - 5:00 pm	ESRI Technical Session IV	Lobby Level
5:30 pm - 7:30 pm	Awards Banquet	Salon F
7:30 pm - Late	Social	Main Event in Grapevine

WEEK AT A GLANCE

2004 South Central Arc User Conference

Opening Breakfast & Keynote

Join us in **Salon E** for breakfast with Andrew Sansom, Executive Director of the International Institute for Sustainable Water Resources at Texas State University! We will also be introduced to our vendor participants and their companies during the Vendor Spotlight at the Opening Breakfast.

Vendor Hall & Reception

Vendors will be exhibiting all of their newest technology and services from 10:30am to 8:00pm on Wednesday, April 7th in **Salon F**. Stop by to check out the latest and greatest products in the industry, and a vendor quite possibly may give you a "FREE DRINK" token to redeem at the Vendor Reception. Enjoy the fun, food and drinks at the Vendor Reception from 5:15pm to 8:00pm on Wednesday, April 7th also in **Salon F**. Don't forget your bingo game card in your conference packet, because you just may be the lucky winner at our traditional game of Vendor Bingo!!!

Map Gallery & Applications Contest

Please plan to attend the Map Gallery and Application Contest on Wednesday, April 7th from 5:15p m to 7:30pm in **Salons I & J**. Cast your vote with the ballot in your conference packet to receive a limited edition 2004 SCAUG pint glass. Your votes will determine the winners of some very nice prizes.

University Competition

Stop by to support some talented upcoming "GISers" in the Undergraduate and Graduate University Competitions on Thursday, April 8th from 8:00am to 4:00pm on the ground level in the **Fort Worth Room**.

ESRI Doctor's Office

ESRI staff will be available to help with any technical questions you may have on Thursday, April 8th from 8:00am to 4:00pm in **Salons I & J**.

Awards Banquet

Our business meeting will be held during the Awards Banquet on Thursday, April 8th at 5:30pm to 7:30pm in **Salon F**. After dinner we will have some important topics to discuss, including a few words from our Regional President, Sheila Sullivan, winners from the Map Gallery & Applications Contest, winners from the University Competitions, and the announcement of the newly elected officers.

Grapevine Social

The group will be meeting at the Main Event in Grapevine after the Awards Banquet. See the flyer in the conference packet for directions and information.

CONFERENCE INFORMATION

Andrew Sansom

Executive Director of the International Institute for Sustainable Water Resources at Texas State University

Andrew Sansom is one of Texas' leading conservationists. He is a former executive director of the Texas Parks and Wildlife Department, executive director of the Texas Nature Conservancy and founder of The Parks and Wildlife Foundation of Texas. For his commitment to the management and protection of natural resources, Mr. Sansom also is a past recipient of the Chevron Conservation Award, The Chuck Yeager Award from the National Fish and Wildlife Foundation, The Pugsley Medal from the National Park Foundation, and the Seton Award from the International Association of Fish and Wildlife Agencies. He is a Alumnus of Texas Tech University and Austin College.

Under his leadership at the Texas Parks and Wildlife Department, Mr. Sansom spearheaded a number important programs, including:

- Creating the Parks and Wildlife Foundation of Texas, which funds a number of department programs through private donations.
- Opening two state-of-the-art hatcheries that also serve as research laboratories, educational centers and aquariums -- the Sea Center Texas in Lake Jackson and the Texas Freshwater Fisheries Center in Athens.
- Creating new urban fish and wildlife programs designed to promote awareness of conservation issues in large urban areas where most Texans live. These include KIDFISH, Becoming an Outdoors Woman, Outdoor Kids, and the Buffalo Soldiers Program.
- Reducing the agency's dependence on general tax revenues and slashing the backlog of deferred maintenance in the Texas State Parks System by eighty percent by directing the most comprehensive repair program in the Department's history.

Mr. Sansom, a native of Brazoria County, has dedicated his life to environmental conservation. He has served on the board of trustees of the Texas Historical Foundation, Bat Conservation International, KLRU Public Television in Austin and The National Audubon Society. Sansom joined the staff of the National Recreation and Park Association in Washington, D.C. in 1969. He has served as environmental coordinator for the White House Conference on Youth; special assistant to Interior Secretary Rogers C.B. Morton; director of conservation education at the Federal Energy Administration; and, deputy director of the Energy Institute at the University of Houston.

His published works have appeared in *Texas Monthly*, *The Texas Observer*, *Houston City Magazine*, *Politics Today*, *Texas Highways* and *Texas Parks and Wildlife*. His first book, *Texas Lost*, was photographed by Wyman Meinzer and published in November 1995. His most recent book is *Texas Past*, photographed by Wyman Meinzer and published in November 1997.

Andrew Sansom now serves as Executive Director of the International Institute for Sustainable Water Resources at Texas State University.

Vendor Exhibit Day

Salon F 10:30 am - 8:00 pm
Come by and visit with these companies:

APPLIED TECHNOLOGICAL SERVICES
ARCHIVE SUPPLIES INC
AZTECA SYSTEMS INC
GEOGRAPHIC INFORMATION SERVICES
HUMMINGBIRD LTD
IBM
INFORMATION BUILDERS
IT NEXUS
NTB ASSOCIATES INC
PBS&J
SANBORN MAP COMPANY
TARRANT COUNTY COLLEGE-SOUTHEAST
WESTERN DATA SYSTEMS

Donations for the following events made by:

Opening Breakfast	Archive Supplies, Inc. Information Builders
Vendor Reception	Information Builders Western Data Systems
Wednesday Break	Information Builders NTB Associates, Inc
Thursday Breaks	Information Builders
Awards Dinner	NTB Associates, Inc

Wednesday, April 7th

Salon A & B

11:00am - 12:30pm	2:00pm - 3:30pm	3:45pm - 5:15pm
Kevin Schultz Coastal Mississippi Land Development Suitability Model **Carol Cody** LandView 6	**Baxter & Jean Vieux** *Vflo*™ for ArcGIS: Hydrologic Modeling using GIS	**Erika Boghici** Data Availability Through StratMap and TNRIS **Ravinder Singh Rawat** Developing Geographical Information System (GIS) Real-time Web Portal for Monitoring of Marsh Habitats in Galveston Bay

Salon C & D

11:00am - 12:30pm	2:00pm - 3:30pm	3:45pm - 5:15pm
Robert Finkle The Real Meaning of Integration - Achieving Integration Success Using GIS **Brian Bosier** Developing an Enterprise Water and Sewer Geodatabase DAVID ALLEN	**Susan Olson** Integrating Technology **Bill Campbell** Integrating GIS and Document Management for a Large Water District	**Franzi Davis** Cost-effective Utilities GIS Database Maintenance **Laura Carr** Getting Ready for Digital Submissions - How to set up guidelines and utilize digitally submitted development plans

UTILIZING the NEW COGO TOOLS in ArcGIS 8.3

Salon G & H

11:00am - 12:30pm	2:00pm - 3:30pm	3:45pm - 5:15pm
Teri Landrum Administering SQL Server 2000: The Basics **Duane Dankesreiter and Scott Rae** iCommunities: Investigating North Central Texas One Terabyte at a Time	**Keith Cooke** Using ArcGIS to Develop Smart Growth Initiatives **David Allen** Utilizing the MapBook Developer Extension with ArcGIS 8.3	**Franchesca Collins** Extend Your GIS Solution using IBM WebSphere **Tim Nolan and David Gechter** Success at Collin County, Texas - IBM Intel-based Servers and ESRI

Salon I & J

11:00am - 12:30pm	2:00pm - 3:30pm	3:45pm - 5:15pm
Bruce Martin Managing the Conversion of Water, Wastewater and Storm Drainage as-built Paper Drawings into Your GIS **Kent Dalton** Customizing ArcIMS using Java	**Kathy Spivey** Creating a Regional Information System to Combat Illegal Dumping	**Meredith Reeder** Utilization of GIS and the SDSFIE Database by the Army and DOD

Thursday, April 8th

What's new at ArcGIS 9.0
Covers geoprocessing, advance annotation functions, model builder, and other new features in ArcGIS 9.0

ArcGIS Server vs. ArcIMS
An overview on the differences between the two products and when to use them.

Migrating to the GDB
Covers the steps involved in the successful conversion to a Geodatabase. The session will cover the development of use cases, logical database design, physical Geodatabase design, and implementation.

Introduction to ArcEngine
What is ArcEngine and what can be done with it.

What's new with the Gedatabase at 9.0
Overview on new functionality within the Geodatabase to include new raster storage and Importing and Exporting with XML.

High availability ArcIMS
How to configure an ArcIMS service for high availability, failover systems.

Salon A & B

Session I 8:30am - 10:00am	Session II 10:30am - 12:00am	Session III 1:30pm - 3:00pm	Session IV 3:30pm - 5:00pm
What's new with ArcGIS 9.0	Introduction to ArcEngine	What's new with ArcGIS 9.0	Introduction to ArcEngine

Salon C & D

Session I 8:30am - 10:00am	Session II 10:30am - 12:00am	Session III 1:30pm - 3:00pm	Session IV 3:30pm - 5:00pm
ArcGIS Server vs. ArcIMS	High Availability of ArcIMS	ArcGIS Server vs. ArcIMS	High Availability of ArcIMS

Salon G & H

Session I 8:30am - 10:00am	Session II 10:30am - 12:00am	Session III 1:30pm - 3:00pm	Session IV 3:30pm - 5:00pm
Migrating to the Geodatabase	What's new with the Geodatabase at 9.0	Migrating to the Geodatabase	What's new with the Geodatabase at 9.0

Salon I & J

Session I 8:30am - 10:00am	Session II 10:30am - 12:00am	Session III 1:30pm - 3:00pm	Session IV 3:30pm - 5:00pm
ESRI Doctor's Office	ESRI Doctor's Office	ESRI Doctor's Office	ESRI Doctor's Office

Session I 11:00 AM - 12:30 PM Salon A & B

Coastal Mississippi Land Development Suitability Model

Kevin Schultz, Information Technology Planner (CRMP GIS Manager)
Mississippi Department of Marine Resources (DMR)

Abstract: The Mississippi Department of Marine Resources' Comprehensive Resource Management Plan (CRMP) developed a non-regulatory regional planning tool, called the Coastal Mississippi Land Development Suitability Model, for guiding coastal development and environmental change. The model used ArcView and Spatial Analyst Model Builder to identify areas more suitable for development and, conversely, areas more suitable for preservation according to mutually agreeable criteria. The tool is used by local jurisdictions to assess environmental conditions, address growth management issues, accommodate sustainable development, and reduce pressure on coastal wetlands and marine resources. The paper will present the model inputs, results, and examples of its use.

Biography:
Mr. Schultz is originally from a southeastern suburb of Chicago called Lansing, IL, where he developed his love for and appreciation of the environment. After Kevin switched his academic pursuit from engineering to forestry, he began using aerial photography and computer mapping, which fostered an avid interest in geography and spatial analysis. Mr. Schultz earned BS and MS degrees in Forestry, with a specialization in Outdoor Recreation Resource Management and a minor in Plant and Soil Science, from Southern Illinois University (SIU), Carbondale, IL, May 1982 and August 1989, respectively.

Mr. Schultz has over 17 years of experience in the GIS industry in the public, private, and academic sectors. Kevin developed a sound and diverse knowledge of and expertise in GIS, remote sensing, and relational database management systems for natural resource, environmental, and infrastructure research, planning, and management applications for private and federal, state, and local government organizations. His skill areas include data capture and conversion, methodology/procedural development, database design/development, needs assessments, implementation plans, application design/development, business/presentation development, project management, and technical writing.

Currently, the Mississippi Department of Marine Resources (DMR) Comprehensive Resource Management Plan (CRMP) employs Mr. Schultz

as an Information Technology Planner and the CRMP GIS Manager. Before arriving at DMR, Kevin worked for the City of Gulfport, the Mobile Area Water and Sewer System (MAWSS), Sverdrup Technology, Inc., Waggoner Engineering, Inc., the City of Jackson, Jackson State University (JSU), and the US Army Engineer Waterways Experiment Station (WES). While at JSU, Mr. Schultz was responsible for co-authoring, compiling, and editing an introductory GIS technical report for WES entitled, *Geographical Information Systems: A Primer* . Over the years, Kevin has written a variety of papers and given many presentations.

LandView 6

Carol Cody
Carol Cody GIS Services

Abstract: This session introduces participants to LandView, a data product from the U.S. Census Bureau. LandView is a desktop mapping software to access Census 2000, EPA Regulated Sites, and U.S. Geological Survey data.

The LandView software package combines a database management system with a mapping application which allows users to create, view, and modify maps quickly and easily. Users can browse and query records, locate query results on a map, calculate Census 2000 population and housing unit counts within a specified radius, export data, locate a street address range, and create thematic maps displaying census data. Map layers include states, counties, cities and towns, and congressional districts, census tracts and block groups, ZIP Codes, EPA regulated sites, a detailed road network, & census data.

Biography:
Carol Cody has over 10 years experience working with ESRI products and other GIS software. After earning a Masters of Science degree in geography from the University of Florida, Carol has worked on projects for various state and local agencies including the St. John's Water
Management District, the Florida Department of Environmental Protection, and the Agency for Health Care Administration. As an ESRI Authorized Instructor and a LandView trainer, she facilitates workshops nationwide. She started Carol Cody GIS Services in 2003 and is committed to bringing GIS technology to businesses, governments, and non-profit groups through training, project work, and consulting services.

Session I 11:00 AM - 12:30 PM Salon C & D

The Real Meaning of Integration - Achieving Integration Success Using GIS

Robert Finkle, President
IT Nexus, Inc.

Abstract: By definition, the success of enterprise GIS is measured by the extent to which the GIS serves the entire organization's geospatial information needs and the extent to which the GIS achieves a high degree of integration across the organization's many islands of information. This presentation focuses on the expectations and technical issues association with integrating the City of Killeen's enterprise, geodatabase ArcGIS with 3rd party Maintenance Management software. It lays out a technical hierarchy for defining and understanding integration, and reviews the experience of the City of Killeen in working with its MMS software vendor to achieve data sharing integration with the City's enterprise GIS.

Biography:
Mr. Finkle is the President and co-founder IT Nexus, Inc. a company that specializes in enterprise GIS and IT planning, design, implementation. Mr. Finkle prepares strategic GIS and IT implementation plans and helps clients win management consensus and funding approval for needed systems or system improvements. His focus is on assisting large organizations integrate previously fragmented information environments through the proper design and deployment of GIS and Internet technology.

Developing an Enterprise Water and Sewer Geodatabase

Brian Besier, Senior IT Programmer/Anaylst
City of Fort Worth

Abstract: Increasingly organizations are migrating their spatial data from CAD or shapefile format to a geodatabase stored within a database management system (DBMS). Storing geographic data within a DBMS allows traditionally stand-alone GIS data to be integrated with other applications and users. This paper presents the experience gained by the City of Fort Worth in developing a water and sewer geodatabase model. Design considerations included field mapping requirements, integration with existing sewer modeling tools, and integration with asset and maintenance management software. Also covered is the use of the geodatabase and ArcObjects to create custom

feature editing and validation tools.

Biography:
Brian Besier graduated from the University of North Texas with a degree in Geography in 1995. He has worked in local government as Department GIS Coordinator in the Salt Lake County Surveyor's Office and has worked as a Senior IT Programmer at the City of Fort Worth since 2000.

Session I 11:00 AM - 12:30 PM Salon G & H

Administering SQL Server 2000: The Basics

Teri Landrum, GIS Administrator
City of Grapevine, Texas

Abstract: Most GIS Professionals are familiar with Relational Database Management Systems but very few of us have actually received any training or guidance on how to use them. We've figured out how to connect, query, update, import, export, etc. on our own but when it comes to administering the database, we are often left in the dark. With the arrival of ArcSDE and the Enterprise Geodatabase, more and more of us are finding ourselves in the role of Database Administrator. This presentation will focus on the key concepts that were covered in Microsoft's 'Administering SQL Server 2000' course that will help prepare you to take ESRI's 'Administering ArcSDE with SQL Server' course. The material covered will assume that the audience has experience with the Windows 2000 operating system, an understanding of basic relational database concepts, knowledge of basic SQL syntax and familiarity with the Enterprise Manager and the Query Analyzer.

Biography:
Teri is currently the GIS Administrator for the City of Grapevine. She has been employed with the City for 2.5 years and worked as a consultant to the City for 2 years prior. She is responsible for all aspects of the City's GIS including project management, system administration, database administration, application development/acquisition, data maintenance, map production and training. The GIS supports all departments in the City utilizing ArcGIS 8.3, ArcView 3.2, ArcIMS 4.01, SQL Server 2000 and ArcSDE. Before joining the City of Grapevine, Teri was a Senior Systems Analyst for IT Nexus, Inc. for two years. At IT Nexus, she served as the Project Manager/System Administrator for the City of Grapevine in addition to providing support on several other key projects. Prior to that, she was employed with the City of Arlington Water Utilities Department, City of Denton Planning and Development Department,

Smith County Appraisal District and City of Denton Electric Utilities.

Teri graduated from University of North Texas in Denton, Texas with a Bachelor's of Arts in Geography with a minor in Biology in May 1993. She also received an Associates of Science in Biology from Tyler Junior College in May 1991.
Teri has been an active member of SCAUG since 1994. In fact, this is the 6th time Teri has presented at the South Central Arc User Group Conference. She has also presented papers at the ESRI International Conference, the URISA Conference and the GITA International Conference. Teri served as the SCAUG Publications Coordinator in 1998 and 1999 in addition to winning second place in the Poster competition in 1996 and first place in the Application competition in 1999.

Teri currently resides in Hickory Creek, Texas with her two girls, Brittany (17), Kiera (10) and Bayou the Cat.

iCommunities: Investigating North Central Texas One Terabyte at a Time

Duane Dankesreiter, Manager of Technical Services
Scott Rae, Database Applications Manager
North Central Texas Council of Governments

Abstract: The North Central Texas Council of Governments has been building the foundations of a Regional Information Infrastructure over the past few years. This infrastructure combines data from sources such as appraisal districts, census, and aerial photography with a 16 county basemap to provide demographic, economic, transportation, and environmental decision-making tools to member governments and the public. SDE and ArcIMS are an integral part of this process. With 8 terabytes of data, databases in excess of 24 million records, 500,000 web hits per month, and continuous editing by users, implementing and maintaining this system is an enormous task. This presentation will discuss the architecture, data design, lessons learned, and success stories in building this system.

Biographies:
Duane Dankesreiter is Manager of Technical Services in the Research and Information Services Department at the North Central Texas Council of Governments. He has been providing technical assistance to NCTCOG employees and its member governments for almost nine years. He holds a Bachelor's degree in Geography from Texas A&M University.

Duane administers the North Central Texas Council of Governments' web site as well as their Internet services, this include building and maintaining client web sites as well as researching and developing new Internet technologies. He also provides technical support of geographic information systems and computer administration.

Scott Rae is the Database Applications Manager with the North Central Texas Council of Governments, the regional planning agency for the Dallas-Fort Worth metropolitan area. Scott has worked at NCTCOG since 1990, and has been an active developer of geographic information system, database, and Internet/Intranet applications for a variety of demographic, environmental and related planning programs in north central Texas. His project experience includes flood damage assessment, storm damage risk assessment, population projection, and the development of Internet access to local government data and mapping.

Scott received a Masters in City and Regional Planning from the University of Texas at Arlington in 1990 and a Bachelor of Science in Geography from the University of Oklahoma in 1988.

Session I 11:00 AM - 12:30 PM Salon I & J

Managing the Conversion of Water, Wastewater and Storm Drainage as-built Paper Drawings into Your GIS

Bruce Martin, President
Applied Technological Services, Inc.

Abstract: This presentation will focus on the production control efforts involved in taking as-built paper drawings containing water, wastewater and storm water information and converting them into a municipal GIS. Having performed these services for several municipalities, there are lessons, tips, tricks and procedures learned that will be discussed during this presentation.

Additionally, the process and techniques used to prepare and produce new utility map books resulting from the conversion project will be discussed.

Biography:
Bruce has been involved in the computer-aided design, engineering and automated mapping / GIS markets for close to 25 years. He has a Bachelors of Science Degree in Mechanical Engineering from the University of Texas at

Arlington. In 1989, Bruce founded ATS and has served as its president since the company's inception. ATS provides services to assist clients with the design, construction, implementation, deployment and maintenance of a geographical information system (GIS).

Customizing ArcIMS using Java

Kent Dalton, GIS Programmer/Analyst
Brazos River Authority

Abstract: ArcIMS is fairly easy to set up using the out-of-the-box HTML viewer, but what can you do to move beyond the default functionality? Use Java!

Kent will discuss three different ArcIMS applications he developed for the Brazos River Authority and the different approaches taken with each. Topics include using Java to create ArcXML on-the-fly to customize a map, using the ArcSDE Java API to update a geodatabase from other databases, and using the ArcIMS Java Connector.

Biography:
Kent Dalton is a Sun Certified Java Programmer and GIS Programmer/Analyst at the Brazos River Authority in Waco, Texas. He is responsible for developing ArcIMS applications, linking the Authority's geographic data to other enterprise databases.

Before moving back to Waco, Kent worked as Senior Consultant for Sun Microsystems in New York City, developing web applications for clients such as Putnam, JP Morgan, and Princeton University. Kent has computer degrees from Texas State Technical College and the University of the State of New York.

Session II 2:00 PM - 3:30 PM Salon A & B

V*flo*™ for ArcGIS: Hydrologic Modeling using GIS

Baxter Vieux, Principal
Vieux & Associates, Inc.

Abstract: Forecast streamflow in post-analysis and real-time using radar and rain gauges has applications in water management. V*flo*™ for ArcGIS is a water management tool that allows for both data preparation and modeling using the industry-standard ArcGIS interface.

Watershed model creation, simulation and verification are done in a controlled desktop environment. Existing geospatial data are leveraged using ESRI's powerful software and unified data management system. Slider bar adjustments of parameter maps simplify calibration. Channel routing uses a finite-element solution to the kinematic wave equations. Green and Ampt soil physics, channel cross-sectional data and other features support modeling tasks of complex terrain and climatic conditions. Flow rates are simulated at any location, providing advanced capabilities for water resources management, flood risk mapping, and water quality modeling. The same watershed model development can be implemented on the desktop or in web-based real-time systems. The V*flo*™ model applies worldwide and can enhance information on both gauged and ungauged basins.

This presentation focuses on the collaborative project with the National Weather Service and Lower Colorado River Authority (LCRA). V*flo*™ for ArcGIS is applied to the 346 mi^2 LCRA Sandy Creek watershed. The outlet of the basin is located at Kingsland, TX, upstream from Lake LBJ. This subbasin has a history of quick and unpredictable hydrologic responses.

Biography:
Dr. Vieux is an innovator in distributed hydrologic modeling using GIS. His research and consulting work using NEXRAD radar and original approaches in spatial hydrology have influenced hydrology in the 21st century. He has authored over 75 publications. Prior to his academic career, he was project engineer for a major flood control project and state engineer in Michigan responsible for water resources, flood control, and water quality projects with the federal government. Dr. Vieux has written two chapters on GIS and Radar applications in hydrology for the most popular engineering hydrology textbook in the US, Hydrology and Floodplain Analysis, 3rd edition, by Philip B. Bedient and Wayne C. Huber (developer of SWMM). A second edition of his research monograph, Distributed Hydrologic Modeling Using GIS, published by Kluwer Academic Press, Water Science Technology Series, Vol. 38, will be released in 2004.

Session II 2:00 PM - 3:30 PM Salon C & D

Integrating Technology

Susan Olson, GIS and Technology Administrator

PRESENTATION ABSTRACTS

City of Frisco, Texas

Abstract: During the last 5 years, the City of Frisco has experienced an incredible growth rate, deeming it the "Fastest Growing City in Texas". With its growth, the GIS staff evolved into the IT staff, allowing GIS to integrate with new systems as they are introduced into the City. Discussion will include how Frisco approached this unique opportunity, how various systems have merged with the GIS, and how we've done it with minimal staff.

Biography:
Susan Olson has been in the GIS field since 1992. She is currently the GIS and Technology Administrator for the City of Frisco. Prior to Frisco, she worked as a GIS Analyst for the City of Plano (5 years), and GIS Director for the Smith County Appraisal District (3 years). She is proud to say that the University of North Texas, Geography Department, is her alma mater.

Integrating GIS and Document Management for a Large Water District

Bill Campbell, Vice President
Farragut Systems, Inc.

Abstract: Water Districts, like all municipal agencies, are oftentimes overwhelmed with the management and control of documents, including emails, right-of-way agreements, and project-related documents, such as project plans and CAD drawings. In addition, although water districts have been utilizing GIS to manage both parcel and facility-based information, documents and GIS have not been typically integrated, even though many of the documents could be associated with map features. In order to address this problem, the Northern Colorado Water Conservancy District (NCWCD) recently implemented an integrated Document Management (DM) and GIS system.

By combining Hummingbird's document management products with ESRI's Geographic Information Systems, the system provides the ability to access and manage both structured and non-structured (e.g., documents) information from either the GIS or DM interfaces. The implementation of the system has led to improved workflow and better accessibility to information.

This presentation will discuss the system implementation rationale, benefits and impacts of combining DM and GIS, the role of GIS in the resulting system, and issues, challenges, and lessons learned.

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Session II 2:00 PM - 3:30 PM Salon G & H

Using ArcGIS to Develop Smart Growth Initiatives

Keith Cooke, Southwestern Regional Marketing Manager
Geographic Information Services, Inc.

Abstract: The State of New Jersey's Office of Smart Growth provided a grant to Hunterdon County to measure growth in their primarily rural county. The County contracted G/I/S to develop an application in ArcGIS to allow the planning department to be able to simulate growth in the smaller communities. We'll examine how planners are able to use a powerful ArcGIS extension to be proactive about enforcing their smart growth initiatives.

Biography:
Keith Cooke is the Southwest Regional Manager for Geographic Information Services, Inc. During his 6 years at G/I/S, he has worked on military projects in Japan and primarily on local government projects throughout the United States. A graduate of Auburn University, he worked for four years in community planning and GIS in Montgomery, Alabama and Apex, North Carolina. Keith moved to the Metroplex in January to open G/I/S' latest regional office.

Utilizing the MapBook Developer Extension with ArcGIS 8.3

David Allen, GIS Manager
City of Euless, Texas

Abstract: One of the hidden treasures of ArcGIS is the ability to write custom applications in VBA. And even if you aren't an expert VBA programmer, you can take advantage of this by using pre-written developer samples from the ESRI website. One of the most useful developer samples is the DS Mapbook Generator. It allows you to easily construct multiple page map books with index grids and many more features. Come see how to set this up for your maps!

Biography:
David holds a Bachelors Degree in Architecture from UTA and has worked in the digital mapping field for 20 years; fifteen of those years have been with the City of Euless. He serves as the GIS Program Coordinator for Tarrant County

College and is an Adjunct Professor, teaching advanced GIS mapping and programming classes in the evening. He has recently earned his GISP certification from the GIS Certification Institute which certifies GIS professionals on the basis of education, work experience, and contributions to the GIS field.

Session II 2:00 PM - 3:30 PM Salon I & J

Creating a Regional Information System to Combat Illegal Dumping

Kathy Spivey, Vice President
IT Nexus, Inc.

Abstract: Illegal dumping is a problem for local governments throughout the United States. Local enforcement programs are frustrated by a lack of information about violators that routinely move across jurisdictional boundaries to avoid discovery and prosecution.
The Houston-Galveston Area Council took a proactive approach to combating environmental crime over its 13 county area by funding the development of a regional Environment Enforcement Database and Application (EEDA).
This presentation discusses the development of a web-enabled application using SQL Server, ArcIMS and ASP that allows local environmental enforcement officers throughout H-GAC's region to directly input their casework and field investigations to a shared, web-enabled database. The web application allows enforcement officials working in different cities and counties to:

- Enter illegal dumping violations, incidents and offenders
- Query, track and retrieve information across jurisdictional boundaries
- Search, sort, map and report information

Biography:
Ms. Spivey is Vice President and cofounder of IT Nexus, Inc., a firm specializing in enterprise GIS and IT planning, design, implementation. Ms. Spivey assists clients with the planning, design and implementation of enterprise GIS programs. Ms. Spivey's technical focus is on the design and implementation of applications using GIS and Internet technology that integrate previously fragmented information environments.

Session III 3:45 PM - 5:15 PM Salon A & B

Data Availability Through StratMap and TNRIS

Erika Boghici, Texas State Cartographer
Texas Natural Resources Information System

Developing Geographical Information System (GIS) Real-time Web Portal for Monitoring of Marsh Habitats in Galveston Bay

Ravinder Singh Rawat, GIS Manager
Webb County Appraisal District

Abstract: This project involves the mapping and monitoring of marsh habitats which function like natural habitats for fishery species, developing a DBMS for spatial marsh habitat datasets and creating a prediction model of different fishery species density and population in Galveston Bay. The project uses a geographical information system (GIS) that helps the National Marine Fisheries Service (NMFS) Galveston Laboratory track marshes to evaluate their functionality in supporting fishery species after several years of development. This project assists the NMFS to plan successful restoration/creation projects that can maximize the potential for fisheries support. This project also assists NMFS with the ability to publish the marsh habitat spatial datasets and results about restoration projects on the NMFS website.

Two user-friendly interactive tools are developed in this project. The first tool is developed for use in ArcView GIS software, which provides the NMFS a means to rapidly estimate the population size of a selected fishery species within an area of interest based on the prediction model provided by the NMFS. The Avenue programming language for ArcView was used to develop and implement the clipping tool. The second tool is an interactive Internet tool for clipping, extracting and saving the fisheries marsh habitat datasets of Galveston Bay on the client-side. Microsoft Internet Information Services (IIS) web server with ServletExec ISAPI 4.1 servlet engine, HTML, Javascript, ArcXML and ESRI ArcIMS technology is used to develop the clipping tool for Internet.

This tool helps scientists at the NMFS to predict the fishery species population for the following year. The population sizes of species can be useful information for evaluating the potential economic impacts where changes in land use are proposed, e.g. areas where the removal of salt marshes for urban or industrial development might be proposed. The tool gives them a potential way to evaluate impacts of environmental factors and pollutants on the

population of fishery species. Prediction information for the following year and the interactive use of clipping tool for the GIS and for the Internet in real time will allow the fishing industry to prepare their fishing operations for the following year.

Biography:
Ravinder Singh Rawat graduated from Indian Institute of Technology, Kharagpur India with a baccalaureate degree in Architecture (Honors). He completed his graduate studies in Computer Science at Texas A&M University Corpus Christi (TAMU-CC) in December 2003. He worked on different research project as a GIS and Remote Sensing research assistant at TAMU-CC. For two years, he was involved in a NASA funded research project at TAMU-CC for coastal study of entire stretch of Padre Island from Port Aransas to South Padre Island, Texas. For his paper presentation on "Real-time GIS website for surveying monuments in Nueces county", he received the third prize in graduate category at the 12th Annual SCAUG conference in February 2002. He is serving as a GIS manager at Webb County Appraisal District (WCAD), Laredo Texas since June 2003. He is working on serving the WCAD GIS for Internet and setting up the system architecture with the vision of enterprise GIS to facilitate the operations of the WCAD.

Session III 3:45 PM - 5:15 PM Salon C & D

Cost-effective Utilities GIS Database Maintenance

Franzi Davis, GIS Project Manager/Senior Analyst
Carter & Burgess, Inc.

Abstract: Your community has decided to use geographic information systems (GIS) to map and manage your utilities infrastructure. You've added a work order maintenance management system to automate many tedious tasks. You're using the GIS based data to help your field crews, citizens, planning, and in GASB34 reporting. The database, geodatabase format or other, is designed, up and running, and being used by City staff. You many even have an Internet based interface. Good news, right? As anyone with a GIS knows, creating the initial database is the first big step in creating a functional GIS. The most challenging aspect is yet to begin, maintenance and update.

Data updates and maintenance become the greatest ongoing challenges in obtaining good reliable information from your GIS. This is especially true for utilities, as they are complex and change on a sometimes daily basis as new

subdivisions are added, older ones refurbished, and through general maintenance. CADD standards and consultant management enable simpler data integration, but they are not always reliable. GIS database maintenance can quickly become overwhelming to limited City staff resources.

This presentation provides field-tested cost-effective utilities GIS geodatabase maintenance guidance. A real-world example from the Brownsville Public Utilities Board (BPUB) of just how this can be achieved is provided. The presentation details how a complex water and wastewater utilities geodatabase model is updated and maintained through the use of both CADD and GIS techniques. Detailed infrastructure and network integrity is innovatively and simply maintained with limited resources, existing software, and commonly utilized techniques.

Biography:
After graduating with a Masters in Environmental Science from Texas Christian University, Franzi Davis joined Carter & Burgess, Inc. as a GIS Specialist in 1995. Since that time, she has implemented Geographic Information Systems (GIS) for many clients both local to the SCAUG region and nationwide. Her experience with ESRI GIS includes ArcInfo, ArcGIS, ArcView, ArcIMS, AML, VB, Avenue, ArcObjects, and SDE, as well as databases such as Oracle, Access, and SQL Server.

She has contributed to and led the development of applications and projects that include municipalities, state agencies, a national telecom client; and other private clients. The projects cover many disciplines including environmental, public works and utilities, needs assessment and implementation plans, and facilities management in both web and traditional GIS implementations.

Franzi served as SCAUG secretary in 1999. Most recently, Franzi became one of the first registered GIS professionals through the GIS Certification Institute. Today, Franzi leads Carter & Burgess, Inc.'s Fort Worth GIS efforts with direct specialization in public works, facilities management, environmental, GIS web implementations, and database/geodatabase design and implementation.

Getting Ready for Digital Submissions - How to set up guidelines and utilize digitally submitted development plans

Laura Carr, Senior Systems Analyst
IT Nexus, Inc.

Abstract: Updating the GIS database using digitally submitted approved land development plans in CAD has been a key objective for many city GIS programs. Two primary things are needed to make this opportunity a reality: 1) clear, easy-to-adopt technical rules for structuring CAD files and 2) GIS tools that assist with the capture and population of map and attribute data.
This presentation discusses the approach taken by the City of Killeen to implement digital submissions and to develop GIS data maintenance tools to facilitate the use of CAD data to update GIS feature sets. We will discuss the issues that need to be addressed by the CAD technical specification and we will demonstrate the GIS data maintenance tools and procedures City staff use to:

- Import CAD data into ArcGIS feature classes
  - Automatically strip off CAD text to populate GIS attribute data fields
  - Fit and quality control CAD data to update GIS data sets

Biography:
Laura Carr is the Senior Systems Analyst for IT Nexus, Inc., a firm specializing in enterprise GIS and IT planning, design, and implementation. Ms. Carr graduated from Texas A&M University in 1997 with a degree in Geology. She discovered GIS in her senior year at A&M and has worked in that field ever since. Ms. Carr is an application developer who specializes in the ESRI ArcGIS, ArcSDE, geodatabase and SQL Server environments.

Session III 3:45 PM - 5:15 PM Salon G & H

Extend Your GIS Solution using IBM WebSphere

Franchesca Collins, Software Innovation Center
IBM

Abstract: This session will provide you with an overview of what IBM WebSphere is and how the WebSphere product family can help you develop and deliver end-to-end GIS solutions with your ESRI technology. You'll learn how our tools will accelerate your development process, and how our application server, integration middleware and portal offerings can increase your time to value...and your bottom line. You'll walk away from this session knowing how WebSphere can help you grow your business and how to get started...today!

Biography:
Franchesca (Fran) Collins began her career at IBM in 1981, as a micro code developer for IBM display products. She is currently a Certified IT Specialist in

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the IBM Software Innovation Center (SWIC). As a member of the SWIC her role is to provide IBM cross-brand (WebSphere, DB2, Tivoli, Lotus, Rational) technical sales support for global independent software vendors (ISVs), with a main focus on WebSphere solution offerings.

Success at Collin County, Texas - IBM Intel-based Servers and ESRI

Tim Nolan, GIS Administrator
Collin County GIS
David Gechter, Technical Specialist eServer xSeries
IBM

Abstract: Learn how Collin County, Texas went from a decentralized GIS Department to consolidating onto the "Tower of Power", powered by IBM Intel-based servers. The new ArcIMS, ArcSDE, and web servers prevented Collin County from spending $16,000 for every new user, allowed for easy, accurate updates, and created one consolidated view for the entire organization. You'll walk away knowing the features and benefits of the fast and reliable IBM xSeries servers, including how they provide the high-performance platform demanded of ESRI geospatial software, to meet your graphical and analytical requirements.

Biographies:
Dave Gechter, has worked at IBM for over 6 years. In his current role, he is a pre-sales technical specialist for the eServer xSeries brand, and has been in that function for four years. He began his career at IBM as a post-sales systems engineer.

Tim Nolan is the GIS Administrator of Collin County, Texas. He has worked for the County for 12 years. He graduated from the University of North Texas in 1991 with a Geography degree. In his tenure at the County, he has established a student internship program that is celebrating its 10th year anniversary, he has acquired over $300,000 in grant funding and currently manages 5 GISers (and he has pictures to prove it).

Tim has served as President, Past-President and Texas Representative of the South Central ARC User Group. Tim is a Capricorn and likes the color green. He finds it ironic that his love for gazing out windows is impeded by his basement office.

Session III 3:45 PM - 5:15 PM Salon I & J

Utilization of GIS and the SDSFIE Database by the Army and DOD

Meredith Reeder, Senior Environmental Professional
E²M

Abstract: McAlester Army Ammunition Plant was established in 1942 and covers approximately 45,000 acres in southeastern Oklahoma. They have an extensive set of base data in MicroStation format. A number of factors played a key role in the decision to migrate the data to an SDSFIE (Spatial Data Standards for Facilities, Infrastructure and Environment) compliant geodatabase; these include the U.S. Army guidelines for Geographic Information Systems, and the many improvements in GIS software and computer hardware. In addition to the ESRI ArcGIS compliant geodatabase being developed the corresponding FGDC metadata is being created with the layers. The conversion involves the creation of over 90 feature classes, making for a very complicated database.

This presentation will look at the use of SDSFIE for the creation, implementation and impact of across the board compliant GIS data. The Tulsa District Corp of Engineers and McAlester Army Ammunition Plant enlisted the help of engineering-environmental Management (e²M) in the conversion of their MicroStation drawings into an SDSFIE compliant geodatabase. During this conversion process there was a data call from the Pentagon for several of the layers being converted to be delivered to them in order to fulfill the requirements of the BRAC 2005 study; this will be discussed as well.

Biography:
Ms. Reeder is currently employed by e²M (engineering-environmental Management), as a Sr. Environmental Professional, developing GIS projects for a number of military clients. Ms. Reeder has over 25 years of experience in mapping and GIS work. Her farsighted approach to technology has kept her in tune with the rapid changes in software and equipment. This attention to detail and forward thinking has kept her in leadership positions through out her career. Ms. Reeder teaches the Introduction to GIS classes at Tulsa Community College, where they have a lab with 20 seats of ArcGIS 8.3. she has also taught MicroStation classes since 1994. Engineering-environmantal Management has recently been named an ESRI Business Partner.

Undergraduate Competition

Development of a GIS Derived Indoor and Outdoor Component of the US Population

Austin Douglas Ivey
University of Oklahoma, Norman

Abstract:
World events of the past two years have funneled considerable attention toward reducing the vulnerability of the US population to chemical and biological attacks. Because such attacks can happen at any time and place, it is necessary to develop a geographic database documenting the spatial and temporal whereabouts of the US population for exposure assessment. To achieve this, the Consolidated Human Activity Database (CHAD) was used to derive nationwide and regional location information for study respondents representing time spent indoors and outdoors during the day and night. The corresponding indoor and outdoor fractions were then combined with the appropriate land use classification from the USGS National Land Cover Database (NLCD) and daytime and nighttime US population databases previously developed for analysis within ArcGIS. For example, NLCD data was overlaid in ArcMap with an existing daytime population database in order to ascertain a raster map containing population counts within certain land use classifications. The resulting grid cells were then algorithmically multiplied by a number representing the CHAD derived daytime indoor or outdoor fraction specific to the land use classification of the cell. After applying this process to the entire US population database, a nationwide daytime and nighttime GIS database of indoor and outdoor components of population location was developed at 250m resolution. This database will undoubtedly enhance the ability of present and future exposure assessment research to accurately assess the vulnerability of the US population to chemical and biological attacks.

Graduate Competition

Site Selection
Suitable Zones for Future Wal-Mart Stores in Dallas County

Georgeta Baciu
University of Texas at Dallas

Abstract:

The power of GIS in displaying, analyzing and managing spatial and attribute data has proven very useful in decision making in various human activities such as transportation, earth resources exploration, urban planning, real estate and building construction, environment, and wild life conservation, among many others.

This project combines geographic and demographic data for Dallas County and uses ESRI's ArcGIS software to analyze the current spatial distribution of Wal-Mart store locations relative to population counts, population density, household units and family income. Furthermore, this project attempts to determine suitable areas within Dallas County for building future stores. The rationale behind the process is based on Wal-Mart store characteristics and their target customer base. These criteria are used to determine the necessary conditions for a successful Wal-Mart site selection. Since Wal-Mart management was not consulted about their development policy, some pertinent assumptions were made at the beginning.

Data used for this project include: free data downloaded from ESRI's website (census data attribute and geographic) from www.gis.dfwinfo.com and Wal-Mart distribution data from Wal-Mart's website. Some of the techniques used in managing the data are buffer, clip, merge, vector to raster and raster to vector conversion, raster calculator, etc.

This project is an example of how GIS can be used in a site selection process with applications in fields like real estate, construction, planning, etc., reinforcing the effectiveness and the potential of GIS for business planning.

Adding Interactive Functionality to the Online Campus Map for the University of North Texas

Howard Redfearn
Graduate Student, UNT

Abstract:

In today's competitive marketplace of higher education, universities are always exploring new technologies as a means to gain an advantage over the competition. Most universities currently have web sites where current and prospective students can find information covering many of the aspects of campus life. A map of the campus is usually provided in this information. A map allows current students to find where their classes will be held. It also allows prospective students, and their parents, to become acquainted with the campus without having to visit. This discussion covers the creation and of an

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ArcIMS website to serve data about the campus of the University of North Texas as project for a GIS course. The goal was to create one website where students could gain information about campus buildings, parking and the campus E-Trans bus system. Using ArcIMS, a mapping service was created that provided the information found in those three websites. The resulting map contains the information presented in the other sites, plus additional information those sites would be unable to present in a reasonable manner. This enhances the ability of the map to deliver useful information. The site created in this project has not been adopted by UNT, but is being considered.

The environmental impact of Conservation Reserve Program in Texas County, Oklahoma

Muheeb Awawdeh
Oklahoma State University

Abstract:

Texas County, the study area of this project, ranks first in the state of Oklahoma in terms of CRP enrollments (218, 304 acres out of 1.02 million acres in OK as of July 2003). The GIS-integrated hydrologic model AV-SWAT (Arc View Soil and Water Assessment Tool) was used to evaluate the potential environmental benefits of the CRP in terms of soil and water quality. AV-SWAT is a public domain hydrologic model developed by the USDA-ARS, Temple, Texas. SWAT simulates the effect of management decisions on water, sediment, nutrient and pesticide yields with reasonable accuracy on large, ungaged river basins. GIS is ideally suited for input data management and output visualization purposes. AVSWAT provides a user-friendly interface to easily preprocesses the input data and post process the output data of SWAT. Some of the input data for Texas County include DEM (30m), Soils (STATSGO), LULC (CRP and other cover types). Other data such as management practices (acquired from County Extension Department) and weather (Cooperative Observer Program, COOP) were used.

The Beaver River Watershed was subdivided into 53 sub-basins using the DEM as the base data source. The CRP tracts in Oklahoma were evaluated in terms of soil loss, sediment and nutrient loadings. Model calibration was conducted using stream flow data from two USGS gage stations (Guymon and Beaver River). Performance of model was evaluated using statistical criteria that included relative error (RE), coefficient of determination (R2), and Nash-Sutclife efficiency (COE). Monthly predicted values generally matched well the observed values (RE 9%, 12%, R2 0.0.65, 0.61 and COE 0.64, 0.55 respectively). Although the sediment yield was low overall, it correlates well

with the CRP area. Generally, the higher the CRP area the lower the sediment yield. Most of the sediment yield is derived from the southeastern part of the county. Sediment yield was highest from wheat, general agriculture and corn with an average of 9.25 2.40, and 0.25 tons/ha/year respectively. The index of areal association was calculated to be about 53.40%. Cell-based mapping of sediment yield, derived from the hydrologic response units, shows higher values of sediment yield because it is calculated on a cell (30 m) level. This map can assist in future CRP enrollment. Wind erosion is a more serious problem in Texas County with a maximum wind erodibility index 50 tons/ha/year. Changes in landscape structure due to CRP showed increase in grassland area, number of patches that indicates the development of wildlife habitat friendly environment.

3D Visualization of Downtown Dallas CBD GIS workshop project

Sulafa Ibrahim
University of Texas at Dallas

Abstract:
The City of Dallas Infrastructure Management/GIS Division of Public Works and Transportation has embarked in a project to develop a real-time 3D visualization of downtown Dallas central business district totally integrated with the City's GIS infrastructure.
This project focuses on three-dimensional urban visualization in a geographic information system (GIS) environment. An ArcGIS package with advanced 3-D analysis and modeling extensions was used to query the surface, create a realistic perspective of the urban area and view the surface from multiple viewpoints. Both LIDAR data and actual building heights were used to produce the 3D model. Different approaches were investigated and compared. The problems encountered were analyzed. An integration of two main approaches provided satisfactory results.
ArcGIS extensions were used to first analyze both vector and raster data, and to generate DEMs from Two foot contours, bare_earth and reflective LIDAR data. Bare earth DEM was used as a base for the building, while reflective DEM was used to extrude the buildings heights from LIDAR data. Aerial photos were also draped over the terrain to generate a better understanding of the surface. Different approaches were used to obtain the buildings elevation. After editing the associated attribute tables of the buildings foot prints, the buildings footprints were then transformed from 2D to 3D in ArcScene generating a 3D scenes of urban area.

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3D urban models can be generated completely from LIDAR data but to avoid the LIDAR errors which were also discussed in the project, I used the actual building elevation (which were available in certain websites for the high rise buildings only) to generate an accurate 3D model.
Performing interactive viewing, including pan, zoom, rotate and animated fly through was generated using ArcScene. The different animation and flythrough videos were created to view the model from different direction and to zoom to specific areas of interest.
Finally totally consistent 3D-GIS data was produced by using the combination of digital elevation models from LIDAR technology, actual building heights, building footprints and simultaneously taken georeferenced digital ortho-images. With this model, Dallas City's GIS Mapping Center was able to support the needs of CBD members, building developers, city employees and the public.

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Special Thanks to IBM for donating the the Computer Hardware for all of the SCAUG Training Classes