

15th Annual User Conference



Conference Guide

2005 South Central Arc User Conference

Welcome to the 15th Annual South Central Arc User Group Conference! We have worked very hard to make this an EXCITING and INFORMATIVE event, by including more TRAINING opportunities, WORKSHOPS, TOURS, and much much more, so please take full advantage of what we have to offer. Meet some old friends and make a few new ones! 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!

3001, Inc. The Geospatial Company

Bexar Appraisal District

Brazos River Authority

City of Arlington

City of Longview

City of Midland

City of San Antonio

City of Tyler

City of Victoria

Devon Energy Corporation

Geographic Computer Technologies

Mississippi Department of Marine Resources

Oklahoma Conservation Commission

Oklahoma Water Resources Board

Texas Department of State Health Services

Town of Flower Mound

2005 South Central Arc User Conference

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Week at a Glance

Conference Information

Keynote Speaker

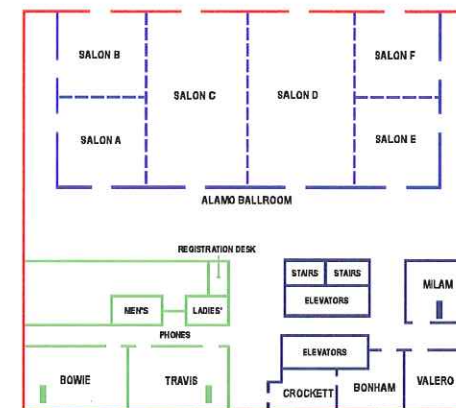
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TRAINING - March 21st - March 22nd

8:00am - 5:00 pm	Intro to Geoprocessing Scripts with Python	Marriott River Center Ste 514
8:00am - 5:00 pm	Creating & Editing Parcels in ArcGIS	Marriott River Center Ste 544

TRAINING - March 21st - March 22nd

8:00am - 5:00 pm	Intro to ArcGIS	Marriott RiverWalk R Terrace
8:00am - 5:00 pm	Intro to Visual Basic	Marriott RiverWalk Salon A
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8:00am - 5:00 pm	Intermediate GIS	Marriott RiverWalk Salon C
8:00am - 5:00pm	GIS with GPS	Marriott RiverWalk R Terrace

Managing a Versioned Geodatabase (March 21-22 & 24)

Get an insider's look of how to manage and edit a multi versioned, enterprise geodatabase. This course will educate participants on how a versioned geodatabase operates, various workflow scenarios, and how to manage and maintain performance in a multi editor environment. Materials will focus on how ArcSDE implements versioning through the use of geodatabase system metadata tables and user delta tables. When deploying a versioned geodatabase, the work flow that is administered can mean the difference between success and failure; the class will emphasize designing and implementing the appropriate work flow for an assortment of

Advanced Analysis with ArcGIS (March 21-22, & 24)

ArcGIS 9 software provides many tools for solving complex spatial problems. This course, created for the experienced ArcGIS user, examines modeling techniques used in spatial analysis and introduces processes and tools that can be used to perform a variety of GIS analysis tasks. The ArcGIS geoprocessing framework, specifically ArcToolbox, ModelBuilder, and the command line is emphasized. Project-based exercises draw from a range of interesting real-world GIS applications. The course concludes with an exciting final project in which participants are challenged to implement many of the tools taught throughout the course. This course is taught using an ArcInfo license of ArcGIS.

Intro to Geoprocessing Scripts with Python (March 21 & 22)

One of the aspects of the ArcGIS 9 geoprocessing framework is the scripting environment. In this two-day class, students will learn about the Python scripting language and how it can be used to access the geoprocessing functionality in ArcGIS 9. Participants begin the course by understanding Python scripting syntax; progress to writing scripts for geoprocessing operations; and finish by incorporating Python scripts as tools in ArcToolbox. Scripting is easy to learn, so introductory-level programmers are welcome. However, some knowledge of fundamental programming techniques, such as loops and conditional statements, is required.

Creating & Editing Parcels in ArcGIS (March 21 & 22)

Learn how to effectively enter cadastral data into your geodatabase. This course addresses displaying and symbolizing parcel data; preparing the editing environment; creating and adjusting tax map annotation; and entering and adjusting parcels from various sources. Data sources include deeds, plats, CAD files, and shapefiles. Participants will practice entering subdivisions into an existing parcel fabric.

Intro to ArcGIS (March 21)

An introduction to the basics of ArcGIS desktop applications. Learn how to use ArcMap and ArcCatalog and how these applications work together to provide a complete GIS software solution. Lecture and hands on exercises.

GIS with GPS (March 22)

Introduction to Global Positioning and Geographic Information Systems technology, theory, and operation, GIS fundamentals and operation, and the collection and integration of field positional data into GIS applications.

Intro to Visual Basic (March 21 & 22)

Rusty VB skills? Let Eric Pimpler from SBC Technologies set your VB skills on the right track. Learn how to write and edit simple scripts to make use in day-to-day GIS. Eric teaches VBA for GIS at San Antonio College.

Designing Geodatabases (March 21 & 22)

This class will investigate the structure of the Geodatabase and how it affects editing data in ArcMap. Sample databases will be dissected to give a better understanding of the purpose of each element. Day 2 will be spent working through several Geodatabase design scenarios to learn more about the decision making process of "what goes where". Afterwards, we will discuss the solutions and take student input for design options.

Intermediate GIS (March 21 & 22)

Using and customizing ArcGIS tools. Learn how to symbolize and label in ArcMap, manage data using ArcCatalog tools, and how to geocode address information as well as displaying tabular data in ArcMap. Lecture and hands on exercises.



Week at a Glance

2005 South Central Arc User Conference

DAY ONE - Wednesday 23rd

8:00 am - 10:30 am	Opening Breakfast & Keynote	Salon A - C
10:30 am - 11:00 am	Break	
10:45 am - 12:00 pm	Vendor Bingo	Salon D
1:30 pm - 8:00 pm	Vendor Hall	Salon D
10:45 am - 3:00 pm	Map Gallery	Salon F
12:00 pm - 1:30 pm	Lunch on your own	
1:30 pm - 2:30 pm	User Presentations Session I	Salon C & Travis
1:30 pm - 4:30 pm	ESRI Doctors Office	Salon B
2:00 pm - 5:00 pm	Workshops	Second Floor Meeting Rooms
2:45 pm - 3:45 pm	User Presentations Session II	Salon C & Travis
4:00 pm - 5:00 pm	User Presentations Session III	Salon C & Travis
4:00 pm - 5:00 pm	ESRI Tips & Tricks	Travis
3:00 pm - 8:00 pm	Map Gallery & Application Competition	Salon E & F

Salon A

Managing Raster Data Workshop

Handling and managing raster data in ArcGIS/SDE. An overview of the different types of raster data sets and how the type of data affects raster analysis using ArcGIS Geoprocessing tools. PowerPoint presentation and live demonstrations.

R Terrace

Using Multi Media Technology to Enhance GIS Products Workshop

Do your maps need a little zing? Cecilio Martinez of the San Antonio/Bexar County Metropolitan Planning Organization will show you how to creatively spruce up your GIS products.

Bowie

GIS and Land Development Workshop

An in depth looks at how the City of San Antonio's Development Services Department uses GIS. Topics include: Platting and Geodatabases, Addressing, Zoning, and using imagery to create Tree Stand Delineations. PowerPoint presentation and live demonstrations.

Milam

Practical Cadastral Creation and Editing Workshop

Do your local real estate entities, surveyors, and appraisers seem in the dark about the power and capabilities of GIS? Mike Howie from the Kendall county appraisal district will show you how to motivate these contributors to make your GIS smooth and seamless.

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

Week at a Glance



2005 South Central Arc User Conference

DAY TWO - Thursday 24th

8:30 am - 12:00 pm	University Competition	Salon A
8:30 am - 9:30 am	User Presentations Session I	Second Floor Meeting Rooms
8:30 am - 4:30 pm	ESRI Doctors Office	Salon B
9:30 am - 9:45 am	Break I	
9:45 am - 10:45 am	User Presentations Session II	Second Floor Meeting Rooms
10:45 am - 11:00 am	Break II	
11:00 am - 12:00 pm	User Presentations Session III	Second Floor Meeting Rooms
12:00 pm - 1:15 pm	Lunch on your own	
1:15 pm - 4:00 pm	Tours	TransGuide or ESRI
5:45 pm - 10:00 pm	Knibbe Ranch SCAUG Social	Knibbe Ranch

DAY THREE - Friday 25th

8:30 am - 9:45 am	ESRI Technical Session I	Second Floor Meeting Rooms
9:45 am - 10:45 am	Morning Break	
11:00 am - 12:30 pm	User Presentations Session I	Lobby Level
10:00 am - 11:00 am	ESRI Technical Session II	Second Floor Meeting Rooms
11:00 am - 1:15 pm	Lunch and Conference Awards	Salon C & D



Texas • Oklahoma • Louisiana • Mississippi
Puerto Rico • Cayman Islands



Week at a Glance

2005 South Central Arc User Conference

Opening Breakfast & Keynote

Join us **Wednesday, March 23rd** in **Salon A - C** for breakfast with **Dr. Gordon Wells**, Program Manager for the Center for Space Research at the University of Texas at Austin! The newly elected **2005-2006 SCAUG Officers** will be announced and 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 10:45am to 8:00pm on Wednesday, March 23rd in Salon D. 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 5:00pm to 8:00pm on Wednesday, March 23rd also in Salon D. 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, March 23rd from 3:00pm to 8:00pm in **Salons E & F**. Cast your vote with the ballot in your conference packet. 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, March 24th from 8:30am to 12:00pm in Salon A.

ESRI Doctor's Office

This year's Doctors office will be staffed by the ESRI San Antonio Regional Office Technical Staff. The staff will be available to help with any technical questions you may have on Wednesday, 1:30 to 4:30 and Thursday 8:30 to 4:30 in Salon B.

Lunch and Conference Awards

Our business meeting will be held during the Awards Lunch on Friday, March 25th at 11:00am to 1:30pm in Salon C & D. After dinner we will have some important topics to discuss, including a few words from our Regional ESRI Representative, Sheila Sullivan, winners from the Map Gallery & Applications Contest, and winners from the University Competitions will be announced.

Knibbe Ranch Social

Join us **Thursday evening, March 24th, 6:00pm-10:00pm** at the historical Knibbe Ranch! Sit by the camp fire and take in the Texas Hill Country air, take a hay ride and learn about pre-historic Indian campgrounds, walk along the creek, kick back and enjoy a southwestern country Barb-BQ dinner and entertainment at the Knibbe Ranch!

Ticket required for Knibbe Ranch Social.

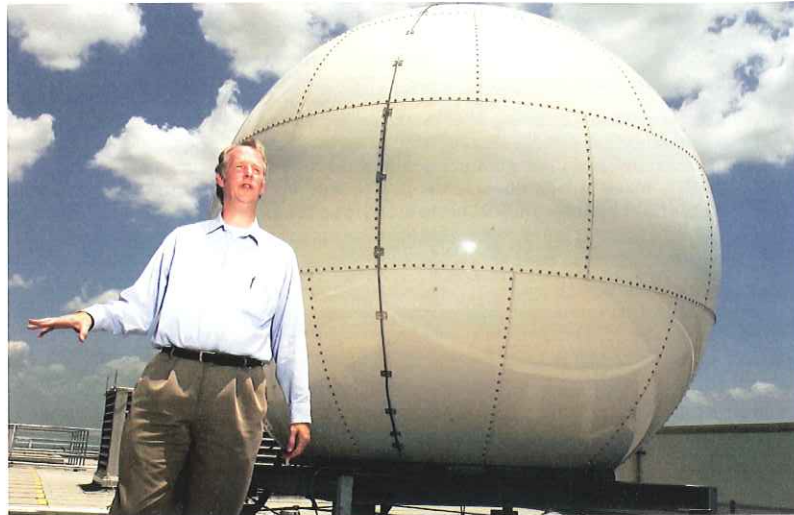
Wine & spirits available.

Conference Information



Dr. Gordan L. Wells

Program Manager for the Center for
Space Research at the University of Texas at Austin



Dr. Gordon L. Wells serves as the Program Manager for the Center for Space Research at the University of Texas at Austin. He oversees the operation of the CSR direct broadcast satellite receiving station and the development of remote sensing applications for federal and state agencies. His application research focuses on the management of water resources, air quality monitoring and decision support systems for emergency management. As state technical analyst, he has contributed to the creation of high resolution geospatial data developed for the state under the Texas Strategic Mapping Program. A former NASA scientist at the Johnson Space Center, he received his doctorate in Quaternary Geology and Palaeoclimatology from Oxford University.

Address Topic:

"The Orchestration of Real-Time Geospatial Information for the Proposed
Texas Hydrologic Observatory"

Keynote Speaker



Vendor Exhibit Day

Salon D 10:45 am - 8:00 pm

Come by and visit with these companies:

APPLIED TECHNOLOGICAL SERVICES
AZTECA SYSTEMS INC
DIGITAL MAPPING SERVICES
EI TECHNOLOGIES
GEOANALYTICS
GEOGRAPHIC COMPUTER TECHNOLOGIES
HUMMINGBIRD LTD
I.S. CONSULTING
IBM
INFORMATION BUILDERS
IT NEXUS
LATITUDE GEOGRAPHICS GROUP
NTB ASSOCIATES INC
P2 ENERGY SOLUTIONS
PINNACLE MAPPING TECHNOLOGIES
SMART DATA STRATEGIES
STEWART GEO TECHNOLOGIES
TARRANT COUNTY COLLEGE
TEXAS NATURAL RESOURCES INFORMATION SYSTEM
TRUE AUTOMATION
WESTERN DATA SYSTEMS

Vendor Donations

Opening Brunch	Information Builders
Vendor Reception	P2 Energy Solutions
Breaks	NTB Associates, Inc Western Data Systems
Awards Lunch	Western Data Systems

Participating Vendors



Wednesday, March 23rd

Salon C & Travis

Session I 1:30pm - 2:30pm	Session II 2:45pm - 3:45pm	Session III 4:00pm - 5:00pm
Betsy Chatham Emergency Mapping in the City of Fort Worth Bert Dorrestyn Austin Police Dept CrimeViewer	Steven O'Neal Document Management and GIS Enables Rapid Decision-Making and Planning Alistair Strachan The NEXTMap USA Program - An Overview of the Contiguous Nationwide IFSAR Mapping	ESRI Tips & Tricks

Thursday, March 24th

Salon E & F

Session I 8:30am - 9:30am	Session II 9:45am - 10:45am	Session III 11:00am - 12:00pm
Tim Nolan Developing a GIS Business Plan David Allen GIS Inventory For GASB 34 Reporting	Brent Wilson GIS and Airports Mark T. Schnur Mapping SAP-Business Warehouse Data	Don Grady Achieving Enterprise GIS through Service Oriented Architecture Alistair Strachan A Comprehensive Overview of IFSAR Mapping for Geospatial Data Users and Managers

Salon C & Travis

Session I 8:30am - 9:30am	Session II 9:45am - 10:45am	Session III 11:00am - 12:00pm
Rebecca Squyers Annexation Feasibility Jason Zou Integration of Agent-based Modeling	Jim Scott TNRS Alisagar Rangwala Developing a Comprehensive Crash Data Analysis System with GIS and Video Image	Fernando De Vivo GIS Implementation & Data Management for Trinity River Vision/Central City Project ESRI Tips & Tricks

Bowie

Session I 8:30am - 9:30am	Session II 9:45am - 10:45am	Session III 11:00am - 12:00pm
Bill Boehning Thought Leadership/IBM	Bill Boehning Integrating Business Warehousing/IBM	William Holland Integrating Data Warehousing/Mining and Data Acquisition Portals with GIS

ESRI DOCTORS OFFICE

Salon B

Salon B

Salon B

Wednesday, March 23 1:30pm - 4:30pm	Thursday, March 24 8:30am - 12:00pm	Thursday, March 24 1:30pm - 4:30pm
ESRI Dr Office	ESRI Dr Office	ESRI Dr Office

ESRI Doctors' Office

This years Doctors office will be staffed by the ESRI San Antonio Regional Office Technical Staff. There will be up to six technicians at a time skilled in different modules and components of the ArcGIS Product Line.

There will be two technicians to handle ArcSDE, two to handle ArcGIS Desktop and Extensions, and two to handle ArcGIS Web Server technologies.

To maximize your valuable time, this year we will be providing fifteen minute slots in which you can sign up for. A receptionist will be provided to assist you in signing up and getting to the appropriate Technician. This schedule will be divided among the different ArcGIS components.

The hours will be 1:30 to 4:30 on Wednesday, and 8:30 to 4:30 on Thursday.

Friday, March 25th

Salon A

Salon B

Salon E

Salon F

Friday, March 25 8:30am - 11:00am	Friday, March 25 8:30am - 11:00am	Friday, March 25 8:30am - 11:00am	Friday, March 25 8:30am - 11:00am
Managing SDE Instances with ArcCatalog and Data Models	Internet GIS	GPS Strategies	ArcGIS Desktop

Brig Bowles - ESRI Technical Team
Managing SDE Instances with ArcCatalog and Data Models

Gayatri Kesavamurthy - ESRI Technical Team
Internet GIS: ArcIMS, ArcGIS Server, and the Data Delivery Extension

Mick Garrett RICS - Trimble
GPS Strategies for Successful Data Collection and Import Using the GPS Analyst Extension for ArcGIS

Adam Pittman - ESRI Technical Team
ArcGIS Desktop: Building Models in ArcGIS, and the Network Analyst Extension



2005 South Central Arc User Conference

Wednesday, March 23rd

Session I 1:30pm - 2:30pm Salon C & Travis

Emergency Mapping in the City of Fort Worth

Betsi Chatham, Senior GIS Analyst
City of Fort Worth Environmental Management

Abstract: In the past few years the Fort Worth / Tarrant County Emergency Management Office has relied upon Geographic Information System (GIS) technology for support in both emergency preparedness and response. The City of Fort Worth Mapping Team was formed to enhance the city's emergency planning process and response capabilities.

The City of Fort Worth is one of five beta test sites for the Department of Homeland Security's National Atmospheric Release Advisory Center (NARAC) iClient plume modeling software, which provides tools to assess the consequences of atmospheric releases. These tools allow users to enter release information and export model predictions to a format that can be utilized within the city's GIS Enterprise.

Not only has the city relied on GIS for emergency preparedness, it has also incorporated GIS into its emergency response during severe weather events. Locations of high-water crossings, property damage, road closures, utility outages, storm debris, and potential flood impacts were common spatial concerns of emergency managers and responders.

Biography: B.A. in Physical Geography, Arizona State University
M.A.G. in Environmental GIS, Southwest Texas State University
12 years of professional GIS experience
Hobbies include saltwater fishing, live music & BBQing

Austin Police Dept Crime Viewer

Bert Dorrestyn, GIS Programmer/Analyst Supervisor
City of Austin

Biography: Bert Dorrestyn has thirty-seven years in digital mapping, photogrammetry, GIS and programming. He currently works for the city of Austin as a GIS Programmer/Analyst supervisor. His team of ten highly educated programmers serve twenty-three departments with GIS programming services and application support.



Presentation Abstracts

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Session II 2:45pm - 3:45pm Salon C & Travis

Document Management and GIS Enables Rapid Decision-Making and Planning

Steven O'Neal
Hummingbird

Abstract: Integrating GIS with Document Management systems offers users a strategic enterprise tool. By linking an ArcIMS Map to one or many supporting documents, such as engineering drawings or construction contracts, creates faster access to information, improves the decision-making process between departments, eliminates redundancy of information, and since users are always working on the most current versions of the files, creates a higher level of confidence in the "correct information" the first time. Documents tied to spatial locations help back office employees quickly identify related and relative features that can further validate information they are researching. The combination creates a dramatic paradigm shift within the business operation model, increasing internal performance, reducing costs and generating unified environment with improved information sharing.

The NEXTMap USA Program - An Overview of the Contiguous Nationwide IFSAR Mapping

Alistair Strachan, Manager, Southeastern US
COTS data & Data Acquisition Services

Abstract: There has long been a need by terrain data users for continuous, accurate, large area datasets for consistent mapping, planning, and feature analysis. To fulfill this need, a comprehensive national mapping program for the United States has commenced. This program will realize high-resolution imagery and high-performance digital elevation data (DEM) for the conterminous U.S. covering 3.1 million square miles in a multi-year program.

The NEXTMap USA datasets will provide contiguous, consistent, and predictable elevation and image base-layer data for GIS applications, visualization, flood-mapping, feature extraction, route planning, control & rectification of other images sources, at national, regional, & local levels. Complete state coverage's have already been acquired, for MS, with CA and FL just completing (March 2005). Additionally large areas of AR, LA & WV have also been acquired. Significant to TX GIS users are plans to map the entire state to produce 5-m posting DEM data within the next two-three years. Several counties in Texas have already been acquired for use by FEMA for their map modernization program.

Biography: Alistair started his career as a Land Surveyor 25 years ago and has been involved in most aspects of the geospatial industry



Presentation Abstracts

2005 South Central Arc User Conference

Thursday, March 24th

Session I 8:30am - 9:30am Salon E & F

Developing a GIS Business Plan

Tim Nolan, GISP, GIS Administrator
Collin County, Texas

Abstract: We've all heard that "80% of all managed data is geographic in nature." What does that statement mean to your management or constituents? The Geospatial community understands that GIS is the tool to exploit the "80%" of information currently being under-utilized. However, how do you convey the importance of integrating GIS as a central component of your business practices? A GIS business plan can spell out your message.

Many agencies are now leaning toward performance measures to sustain departmental budgets. A GIS business plan is the ideal document to establish goals and objectives, keys to success, challenges and even risks. The plan will serve as a marketing strategy for internal and external services. A GIS business plan is your departmental road map.

Biography: Tim has worked at Collin County for 13 years. His department's GIS student internship program has just celebrated its 10th anniversary. He has served on the SCAUG Executive Board as a Texas Rep and its President. He recently earned his GIS Professional (GISP) certification in September 2004.

GIS Inventory for GASB 34 Reporting

David Allen, GISP, GIS Manager
City of Euless

Abstract: Euless was able to build an inventory of all its infrastructure elements using GIS. This inventory was then merged with historical costing data to develop a depreciated cost per item. The final total was used to conform to the GASB 34 requirements.

Biography: Mr. Allen has been with the City of Euless for over 16 years, and serves as Adjunct Faculty and Program Coordinator for GIS at Tarrant County College.



Presentation Abstracts

2005 South Central Arc User Conference

Session I 8:30am - 9:30am Salon C & Travis

Annexation Feasibility Study 2004

Rebecca Squyres, GIS Administrator
City of Brenham

Abstract: The presentation is a bound report on potential annexation. It was created in ArcDesktop 9.0 using rectified raster images of scanned contour maps overlaid with parcel data displayed as transparencies along with utility lines to determine cost of extending to annexed areas.

Biography: Employed by the City of Brenham for the past 6 years.

Integration of Agent-based Modeling with GIS Implementation of Sugarscape Model using ArcGIS

Zhijun Zou, GIS Specialist
City of Freeport, TX

Abstract: Agent-based Modeling (ABM) is an approach to simulating the behavior of a complex system in which agents interact with each other and with surrounding environments based on simple local rules. The agent behaviors ultimately determine the pattern of the complex system. Most of the available ABM toolkits do not have or have weak GIS connections. In this paper, a classical ABM model, Sugarscape Model, is implemented within ArcGIS environment. This work shows the effort to implement ABM in a GIS environment, which can support all the native GIS data formats and allow full access to the abundant GIS spatial analysis functionality. This paper also provided the evaluation of the approach.

Biography: GIS Graduate student at the University of Texas at Dallas; Working at City of Freeport as a GIS Specialist; Interested in developing /customizing GIS applications, internet mapping.



Presentation Abstracts

2005 South Central Arc User Conference

Session II 9:45am - 10:45am Salon E & F

Maintaining the assets of an City, County or Airport using GIS and Cityworks

Brent Wilson, Account Manager / Regional Rep.
Azteca Systems, Inc.

Abstract: When talking about an airport's assets, they could be described as a self contained city within a city or county. Cities, Counties, and Airports need the same tools as many other government organizations. The City of Oklahoma City owns the Will Rogers World Airport and they use GIS in conjunction with a CMMS (Computerized Maintenance Management System). This presentation will explore how you can use GIS in a City, County or Airport to maintain the assets and how the Will Rogers World Airport is using it today.

Biography: Brent Wilson is the Account Manager for Azteca Systems, Inc in the Central Region of the US, with 9 years of ESRI GIS knowledge.

Mapping SAP-Business Warehouse Data

Mark T. Schnur, Software Specialist
City of San Antonio

Abstract: The City of San Antonio's Enterprise Resource Management (ERM) project is using SAP Business Warehouse to produce management information reports for City Council, Department Directors, and city staff. The BW team has developed methods to display data from BW on maps. This presentation will examine the benefits of these methods.

Biography: Mark is a Software Specialist with the City of San Antonio. He holds a Masters Degree in Recreation and Park Administration, and is pursuing a certification in GIS at UTSA. He became interested in GIS while he was in Afghanistan with the U.S. Army.

Session II 9:45am - 10:45am Salon C & Travis

Developing a Comprehensive Highway Crash Data Analysis System with GIS and Video Images

Alisagar Rangwala, Research Assistant
University of Louisiana at Lafayette

Abstract: This project is designed to analyze highway accident data to understand safety trends, design strategies to combat safety problems, and evaluate impact on safety measurement. The Louisiana Department of Transportation and Development (LaDOTD) initiated this project in 2001



Presentation Abstracts

2005 South Central Arc User Conference

to develop a program that can analyze and display highway safety problems from any interested perspective. The biggest benefit of this project is that users can conduct their own traffic crash analysis without being an expert in neither database nor GIS.

This project is developed in Visual Basic and Map Objects (2). User can perform the accident-data analysis on three dimensions: spatial, temporal, and contributing or causative factors. The accident analysis along these three dimensions should be made at different level of details, from the aggregated to the disaggregated levels. For instance the spatial dimension can go from a county at an aggregated level to a spot (intersections or small segments of a street) at a disaggregated level. The dimension of time can be year, month, day of the week, and time of the day. The contributing or causative factors include highway design (geometric and pavement), environmental condition (weather and traffic control), and characteristics of the driver. Meaningful analyses can be performed by combinations of all three dimensions.

Theoretically, accident statistics in each of these three dimensions can be stratified and analyzed in almost an infinite number of ways, depending on the factors of interest to an analyst. Some common analyses include the examination of:

- Trends over time
- Trends over space
- Stratified by highway type and geometric element
- Stratified by accident type
- Stratified by environmental conditions

The proper accident statistics and analysis can reveal commonalities and trends concerning the underlying causes of highway accidents, which help to develop effective and efficient policy, design, control and enforcement strategies.

The analysis results are displayed by charts, tables, as well as maps that are designed with GIS functions. The needs for the analysis on a spatial context make the application of GIS necessary. The map part of result display has all basic presentation tools of GIS such as zoom-in and out, pan movement, attribute information, labeling at certain scales, and video. With information icon, user can see the attributes of a selected sub-control section (a line), intersection (point), or a crash (a point). The video icon allows user to review any selected segment of highways from driver's perspective. When a user selects the video control and clicks on a highway segment, a pop-up window shows the streaming images of the control section. To be able to do so first the user has to insert the DVD which the system informs the user to insert. The video images for all state highways are updated every other year that is mainly used for the purpose of pavement management system.

The feedback from initial demonstrations of this project to various seminars is very good. Currently we are also working on making this project web-enabled. We have almost completed the web-enabled version. It is developed using ASP.net and ArcIMS.

Biography: Aliasgar Rangwala has completed his MS in Computer Science & is currently working on MS in Civil Engineering with specialization in Transportation Planning. He has been working in Highway Safety and utilizing GIS in safety for last 2 years.



Presentation Abstracts

2005 South Central Arc User Conference

Session III 11:00am - 12:00pm Salon E & F

Achieving Enterprise GIS through Service Oriented Architecture

Don Grady, Director Strategic Alliances
Information Builders

Abstract: Service Oriented Architecture allows GIS systems to interoperate with non-GIS systems through standard reusable interfaces. This presentation will show how data can be exposed from a variety of sources (SAP, Siebel, JD Edwards, flat files, hierarchical files, etc), and made available to ArcGIS server as an adapter or as a web service.

A Comprehensive Overview of IFSAR Mapping for Geospatial Data Users and Managers

Alistair Strachan, Manager, Southeastern US
COTS data & Data Acquisition Services

Abstract: IFSAR (Interferometric Synthetic Aperture Radar) technology has not yet gained the same level of acceptance of comparable technologies such as the recent mass-adoption of LIDAR, or historically, photogrammetry. However, IFSAR is considered a mature technology based on its history within government organizations, and the eight years it has been utilized in the commercial sector.

This presentation will be targeted to the geospatial community that already have a basic understanding of mapping/GIS but are not yet familiar with IFSAR data or products. This will allow them to gain an understanding of this rapidly emerging technology.

Biography: Alistair started his career as a Land Surveyor 25 years ago and has been involved in most aspects of the geospatial industry

Session III 11:00am - 12:00pm Salon C & Travis

GIS Implementation and Data Management for Trinity River Vision/Central City Project

Fernando De Vivo, GIS Specialist
CDM, Fort Worth, Texas

Abstract: The Trinity River Vision/Central City Project is an ambitious, \$360 million dollar multi-purpose flood control, environmental enhancement, and urban revitalization project in



Presentation Abstracts

2005 South Central Arc User Conference

Fort Worth, Texas. This presentation will focus on the role information management and GIS have in supporting the various disciplines of the project. Topics include multistakeholder data dissemination, web based databases, and ArcIMS management tool.

Biography: Received B.S. in Geographic Information Science from Texas A&M University Corpus Christi in 2003. Over 3 years experience working as a GIS Technician/Specialist in South and North Texas. Experience in industry sectors such as municipal utilities, engineering/surveying and oil & gas.

Session III 11:00am - 12:00pm Bowie

Integrating Data Warehousing/Mining and Data Acquisition Portals with GIS

William Holland, CEO of GeoAnalytics
GeoAnalytics

Abstract: The convergence of GIS and IS offers extraordinary new opportunities. Driven by emerging data, system, and application interoperability standards, GIS can now become a central and transparent part of business information systems such as asset, financial, human resource, resource, project, and customer relationship management. Major advances in mobile computing and wireless communications now offer potential for anytime, anywhere location-based information access and decision support. This presentation has two objectives: First, to provide definitions and examples of the next dimension of GIS, including key organizational, and management success factors; Second, to detail a proven technical framework for spatial and non-spatial data interoperability using the SAS Bridge and ubiquitous access using ESRI's ArcGIS and the SAS Intelligent Warehousing and Information Delivery Portal.

Biography: William Holland, CEO of GeoAnalytics, is Past-President and Board member of the National States Geographic Information Council and holds BS and MS with honors in Agricultural Economics and was a Hunter Graduate Fellow at the University of Illinois, Urbana-Champaign. He was conferred, cum laude, a Juris Doctor from the Northern Illinois University College of Law, DeKalb, Illinois.

Presentation Abstracts



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Undergraduate Competition

Prospecting a New Local

David Pollard
Tarrant County College

Abstract: GIS analysis used in determining the optimal locations for starting new local branches of the Green Party. Third political parties by their nature have limited funds to locate and initiate expansion. Using GIS software and publicly accessible data, promising locations can be determined at minimal cost. By converting vector based data into raster images, the raster calculator can find locations based on a large number of variables. Using ArcGIS model builder, this process can be repeated on an as needed basis as new data becomes available.

Graduate Competition

Interpolating Census Block Populations using Regression Analysis and Texture Analysis of Digital Aerial Photographs

Shuo-sheng 'Derek' Wu
Department of Geography
Texas State University

Abstract: Census population data are commonly used for population-related research and applications. However, the areal nature of census enumeration units often creates problems in data visualization, analysis, and integration with other datasets. This study presents a method for interpolating census population to residential land use within census blocks. Specifically, based on existing Year 2000 census block and Austin land use data, census blocks entirely within different residential land uses, such as single-family and multi-family, were first selected. The variogram textures from digital aerial photographs were then calculated for each of the sampled blocks. A regression analysis was then operated to derive the regression coefficients between the variogram textures and the average population density of census blocks. Based on derived regression coefficients, populations of individual land use parcels within mixed-land-use census blocks were calculated after variogram textures were calculated for each land use parcels. Lastly, census block populations were disaggregated to within residential land use parcels by maintaining original census block populations.



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3D GIS Analysis of Strontium Distribution in the Edwards and Trinity Aquifers

Sheeba Mary Thomas
University of Texas at San Antonio

Abstract The Edwards Aquifer, 180 miles long, and varying in width from 5 to 40 miles, extends from Brackettville, Texas to Kyle, Texas. The aquifer system is developed in Cretaceous limestone that is extensively karstified with many sink holes and caves. The Edwards recharge zone is heavily faulted by the Balcones Fault Zone which juxtaposes the aquifer layers at many places might provide both vertical and horizontal pathways and thus facilitate the movement of surface water along with other organic and inorganic constituents into the aquifer. Studies conducted by Kuniansky and Holligan (1994) and Mace (2000) suggest that Edwards Aquifer is significantly recharged by the Trinity Aquifer through overlying layers that are crosscut and offset by the faults and as well as from underlying layers. The Trinity Group extends from Red River to the eastern edge of Bandera and Medina counties in Texas. Assessment of water chemistry data from the Texas Water Development Board in the Edwards Aquifer indicates higher levels of strontium in recent years. Several causes such as fluid-rock interaction, ion exchange with the clay minerals, meteoric water and contact between aquifer and its confining units could be used to explain the higher strontium concentrations. The Edwards Aquifer was never historically known to have high concentrations of strontium whereas the Trinity Aquifer has higher natural strontium concentrations. I will be testing the hypothesis that strontium in the Edwards Aquifer is mostly derived from recharge waters originating in the Trinity Group. This hypothesis is being tested by: building a relational database of strontium samples, computing spatially weighted averages of strontium concentrations in the Edwards and Trinity, comparing the distribution of strontium concentrations with spatially variable recharge rates previously estimated, and constructing 3D visualizations of strontium distribution in the Edwards Aquifer region. The average of strontium concentrations in the Edwards Aquifer and in the Trinity Group is approximately 2839 $\mu\text{g/l}$ and 3136 $\mu\text{g/l}$, respectively. Preliminary results indicate that the strontium in the Edwards Aquifer is from water that recharges from the underlying Trinity Group.





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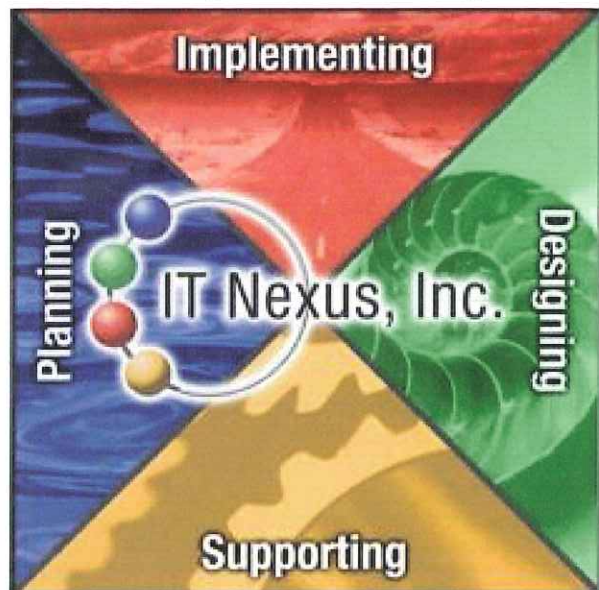


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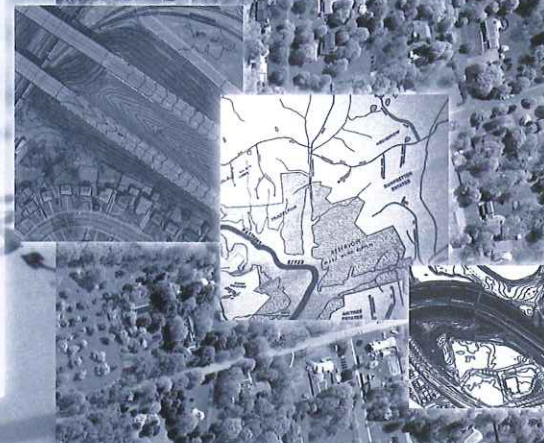
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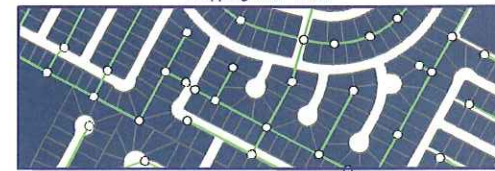
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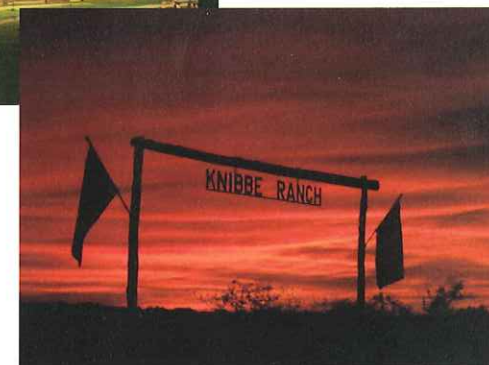
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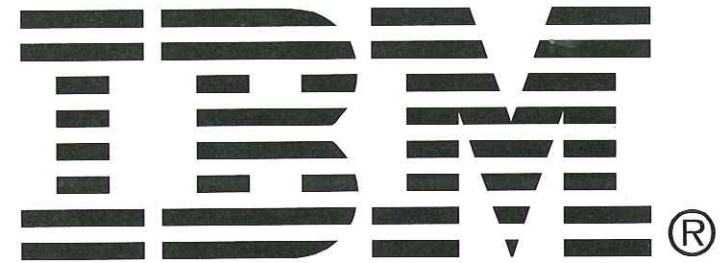


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