ARKANSAS GIS USERS FORUM

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Eleventh Biennial Symposium & Training

THE NEXT GENERATION - A GEOSPATIAL VOYAGE

August 29th - September 2nd, 2011

Clarion Hotel & Conference Center
211 Southeast Walton Boulevard, Bentonville, AR

ARKANSAS GIS USERS FORUM

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Phyllis Poche, University of Arkansas at Little Rock

Tina Rotenbury, United States Forest Service

Symposium Coordinator

Dana Venhaus - Arkansas Extended Learning Center

Arkansas Geographic Information Systems Board

The State Land Information Board was originally created in 1997 by Arkansas Code 15-21-501. Governor Mike Huckabee appointed twelve initial board members who first met in 1998. Three each of the twelve appointees represent state entities; city, county and local government; the private sector; and institutions of higher education. The twelve voting members serve for a term of four years.

The Board supports economic development and an improved quality of life for Arkansas citizens by providing basic spatial data infrastructure, coordinating geographic information activities, and creating short- and long-term strategies that will result in improved decision making, effective asset management, and reduced costs.

ACT 244 of the 87th General Assembly renamed the Board as the Arkansas Geographic Information Systems Board, and added the State Technology Officer as the thirteenth voting member of the board. The State GIS Board works closely with the Arkansas Geographic Information Office.

Arkansas GIS Board Members

Name	Affiliation	Represents
Claire Bailey	Arkansas Department of Information Systems	State Technology Officer
Judge Clayton Castleman	Little River County	Local Government
Dr. Jackson Cothren	U of A, Fayetteville - Center for Advanced Spatial Technologies	Higher Education
Glen Dabney	EFS GeoTechnologies Inc.	Private Sector
Randy Everett	First Electric Cooperative	Private Sector
John Ed Isbell	NTB Associates	Private Sector
Dr. Robert Kissell	U of A, Monticello - School of Forest Resources	Higher Education
Dr. Margaret McMillan, Vice Chair	U of A, Little Rock - Department of Earth Sciences	Higher Education
Tracy Moy, Chair	Arkansas Game and Fish Commission	State Government
Kasey Summerville	Clark County	Local Government
Jon Sweeney	Arkansas Natural Resources Commission	State Government
Bekki White	Arkansas Geological Survey	State Government

"The Next Generation: A GeoSpatial Voyage"

2011 SYMPOSIUM SCHEDULE AT A GLANCE

Monday, August 29

10:00a – 5:00p	Workshop & Symposium Registration
1:00 – 5:00p	Afternoon Workshops

Tuesday, August 30

7:00a – 5:00p	Workshop & Symposium Registration
8:00a – 12:00	Morning Workshops
12:00 – 1:00p	Lunch (on your own)
1:00p	Golf Tournament
1:00 – 5:00p	Afternoon workshops
7:00 – 9:00p	Free evening workshops

Wednesday, August 31

6:15a	5K Walk/Run
8:00 – 10:00a	Symposium Registration
9:00a	Vendor Expo Opens
10:00 – 10:15a	Welcome and Opening Remarks *Bill Sneed*
10:15 – 10:25a	Welcome to Benton County! *Honorable Robert Clinard*
10:25 – 11:00a	Opening Speaker *Kevin Eades*
11:00 – 11:30a	Awards Presentation *Bob Scoggin & Kimberly Bogart*
11:30 – 11:45a	Break/Visit with Vendors
11:45a – 1:30p	Luncheon/Keynote *Lawrie Jordan*
1:30 – 3:00p	Concurrent Sessions
1:30 – 5:00p	AR GIS Board Meeting
3:00 – 3:15p	Break/Visit with Vendors
3:15 – 4:45p	Concurrent Sessions
6:00p	Vendor Reception

Thursday, September 1

9:00 – 10:30a	Concurrent Sessions
10:30 – 10:45a	Break/Visit with Vendors
10:45 – 11:45a	Concurrent Sessions
11:45a – 1:30p	Lunch with Vendors
1:30 – 3:00p	Concurrent Sessions
3:00 – 3:15p	Break/Visit with Vendors
3:15 – 4:45p	Concurrent Sessions
5:00p	Busses begin departing for Horton Farms
6:00p	Evening Activities

Friday, September 2

8:30 - 10:00a	Concurrent Sessions
10:00 – 10:30a	Break/Checkout
10:30 – 10:50a	Guest Speaker *Johnie Wood*
10:50 – 11:15a	Closing Speaker *Charlie Fitzpatrick*
11:15a – 12:00p	Closing Remarks/Prize Giveaway

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Welcome...

to the "The Next Generation: A Geospatial Voyage," the Eleventh Biennial Arkansas GIS Users Forum Symposium and Training. This year we gather in the new venue of Bentonville; the city that is the hub of international business with the small town feel. This is the premiere opportunity to exchange information and share ideas that keep Arkansas on the cutting edge of GIS technology.

The 2011 Symposium and Training features numerous pre-conference workshops, new cost-free training opportunities, and almost a third more presentations than when we last gathered. We'll journey around the state to examine some of the latest and greatest in GIS products and services.

Networking is an integral component of the Symposium and to that end, the Executive Committee has planned a number of special events and off-site activities that will allow you to mix, mingle, kick up your heels a bit, and collaborate with colleagues near and far.

Prepare yourself for a fun and exciting week as we embark on this voyage together!

Bill Sneed, Chair
AR GIS Users Forum

2011 SYMPOSIUM SCHEDULE AT A GLANCE
Wednesday, August 31, 2011

Day ONE	Ballroom IA	Ballroom IB	Ballroom II	Ballroom IIIA	Ballroom IIIB	Suite I	Suite II	Suite III
Time								
1:30	**ESRI** - 2011 International Users Conference Overview - Learn More about Topics Discussed at This Year's Conference							
3:00 BREAK								
3:15	**ESRI** - A Glimpse of the Near Future - a More Detailed Look into Products and Functionality that ESRI is Bringing Our Way (Includes Question and Answer Period)					**ST** - High-Speed Viewshed Computation for Web Mapping Applications *Malcolm Williamson*	**ST** - "Parts Is Parts" It's all about the Data! *Scott Lane* (Session repeated Friday 8:30am)	**GOV**- Benton County Sex Offender Mapping Program *Jonah Freeman*
3:45						**ST** - The Arkansas State-Wide K12 ESRI License - a Unique Opportunity for Our Kids *Jerry Prince*	**ST** - Where's My File?! Simple Tips for a Better File Structure *Randy Puckett* (Session repeated Friday 9am)	**GOV**- GIS for Preparedness, Response and Mitigation for Disasters *Ryan Dickerson*
4:15						**GOV**- Using GIS Technologies for Assessment Adjustments *Laura Brothers*	**ST** - Powerful PowerPoint ADEQ (Session repeated Friday 9:30am) *Becky Allison & Katy Hattenhauer*	**GOV**- Benton County Health Department Food Inspection Website *Jonah Freeman*
6-9 Vendor Reception								

2011 SYMPOSIUM SCHEDULE AT A GLANCE
Thursday, September 1, 2011

Day TWO	Ballroom IA	Ballroom IB	Ballroom II	Ballroom IIIA
9:00	**ST** - Creating a Statistical Exploratory Data Analysis Tool using the ArcGIS Javascript AP *Don Catanzaro*	**SCI** - Indiana Bat Habitat Restoration Project - Syalmore Ranger District *Jeremy Evans*	**ST** - Disseminating GIS Data for General Public Consumption using Google Earth *Mike Jezierski*	**PH&S** - Updating City Limits and Utilizing the LRS Virtual Location Tool at the AHTD *Sharon Hawkins*
9:30	**ST** - GIS and Floodplain Management *Lee Beshoner*	**SCI** - Forest Activities Database - Tracking Changes in Vegetation and Wildlife Habitat Components *Brian Barns*	**ST** - Utilizing the Google Maps API for interactive web-based mapping applications *Nathan Taylor*	**PH&S** - Benefits of GIS in Search and Rescue *Carey Wilcoxson*
10:00	**PH&S** - Northwest Arkansas Red Cross Emergency Resource Mapping Project CAST	**SCI** - Integrating Geospatial and Sensor Technologies for Helping AR Farmers *D. Traywick & D. Saraswat*	**ST** - SQL Spatial: Using the Power of SQL with GIS *Jason Tipton*	**PH&S** - Emergency Response: The Aerial Imagery Approach *James Hartshorn*
10:30 BREAK				
10:45	**ST** - Integrated National Resource Inventories using Trimble Juno and ESRI ArcPad Applications *Chip Stokes*	**SCI** - Use of Geographic Information Systems to Develop Surface-Water Models *Drew Westerman & Rheannon Hart*	**ST** - ArcGIS Server: No Really, It's Just Software *Russell Gibson*	**PH&S** - GIS Support on Fires through the Wildland Fire Decision Support System (WFDSS) *Tina Rotenbury*
11:15	**ST** - Forest Monitoring with Imagery Analysis and GPS *Jim Jolley*	**SCI** - Hydrofracking - Waste Disposal Could Induce/Trigger Potentially Damaging Earthquakes *Scott Ausbrooks*	**ST** - Building Web Mapping Applications Using ArcGIS Server *PAgis*	**PH&S** - Utilizing a Geospatial Viewing Platform as an Incident Management Planning and Operational Tool *Tammy Hocut*
11:45 LUNCH w/Vendors 11:45a to 1:30p				
1:30	**FW - NHD**: Stewardship Progress in AR *Katy Hattenhauer*	**SCI** - Mapping of AR Historic Wetland Forests using DeClassified Imagery *Jackson Cothren*	**RS** - LiDAR Specifications and Flight Planning *Scott Perkins*	**GOV** - Analzing the Impact of State Fleet Vehicles on AR Biodiesel Industry *Mark Cooper*
2:00	**FW** - Creating Local Resolution NHD with LiDAR data *Dave Arnold*	**SCI** - The Role of GIS in Cultural Resource Management and Archeology in the Central AR River Valley *Jami Lockhart*	**RS** - Aerial LiDAR Data Post-Processing and Products *Randy Mayden*	**GOV** - Geocoding & Routing Bulky Item Pick Ups *Kevin Pruett*
2:30	**FW** -Implementation of the USGS StreamStats Program in Arkansas *Aaron Pugh*	**SCI** - St. Louis, Missouri: Then and Now *Chris Davis*	**RS** - ArcMap Tool for Comparing DEMs with Differing Resolutions *Adam Barnes*	**GOV** - Garland County GIS *John Ball*
3:00 BREAK				
3:15	**FW** - Locating People, Places and Events Using an Address *Adrian Clark*	**SCI** - Arkansas Resource Assessment Project *Brian Culpepper*	**SCI** - The Battle of Prairie Grove: An Interactive Experience of a Historic Battlefield Landscape *Snow Winters*	**GOV** - Applications of LiDAR in Local Government *Kevin Kuhlmann*
3:45	**FW** - Use of LiDAR in Two-Dimensional Finite Element Modeling Simulations *Katherine Merriman & Brian Clark*	**SCI** - Geospatial Technologies for Developing Projects to Reduce Environmental Impacts on Stream Banks. *Ethan Inlander*	**SCI** - In Search of the Little Rock, Maumelle & Western Rail Road *Mike Hood*	**GOV** - Bathymetric Surveying of Conway Lake *Holly Harvey*
4:15	**FW** - The National Map Viewer Base Map and Services *Calvin Meyer*	**ST** - Decimeter Accuracy, Trimble Productivity and Handheld Convenience *Chad Hicks*	**SCI** - Comparison of NEXRAD and Rain Gauge Precipitation Estimates in an AR Watershed *B. Hancock*	**GOV** - Geospaital Market Trends *Ashok Wadwani*
EVENING ACTIVITY Buses start departing at 5:00 for Horton Farms				

2011 SYMPOSIUM SCHEDULE AT A GLANCE
Thursday, September 1, 2011

Day TWO	Ballroom IIIB	Suite I	Suite II	Suite III
9:00	**UT** - Empowering GIS to Manage Public Works, Utilities, and Permitting *Jeremy White*	Vendor Showcase	Lightening Talks	DR is IN
9:30	**UT** - GIS Helps Conway Corp. with City Council Approval *James Rains*	Vendor Showcase	Lightening Talks	DR is IN
10:00	**UT** - Providing Water and Sewer Services to Two Cities in Two States *David Latham*	Vendor Showcase	Lightening Talks	DR is IN
10:30				
10:45	**UT** - Connect Arkansas: Mapping Broadband Availability *Emerson Evans*	Vendor Showcase	Lightening Talks	DR is IN
11:15	**UT** - PLWC - Looking Behind, Looking Ahead *Lane Howerton*	Vendor Showcase	Vendor Showcase	DR is IN
11:45				
1:30	**RS** - Thermal Imagery: Potentials for Environmental Management on Military Lands *Scott Alsbrook*	Vendor Showcase	Break/Visit with Vendors	DR is IN
2:00	**RS** - Mapping Flood Extent on the Black River near Black Rock, AR *Mark Cooper*	Vendor Showcase	Vendor Showcase	DR is IN
2:30	**RS** - Land-Cover Mapping using GEOBIA and High Resolution Aerials *Bruce Gorham*	Vendor Showcase	Vendor Showcase	DR is IN
3:00				
3:15	**RS** - A Long-Term Temporal Approach to Mapping Pine Plantations with GEOBIA *Bruce Gorham*	Vendor Showcase	Vendor Showcase	DR is IN
3:45	**RS** - An Approach for Hydrological Enforcement of Low Relief Areas *Hayley Hames*	Vendor Showcase	Vendor Showcase	DR is IN
4:15	**GOV** - Water Use Permitting and Analysis within ANRC *Brian Culpepper*	Vendor Showcase	Vendor Showcase	DR is IN
EVENING ACTIVITY Buses start departing at 5:00 for Horton Farms				

2011 SYMPOSIUM SCHEDULE AT A GLANCE
Friday, September 2, 2011

Friday	Ballroom		Suite I	Suite II	Suite III
8:30			**FW** - Using Census Data in your GIS	**GOV** - Update on the State's GIS Coordination Efforts	**ST** - "Parts Is Parts" - It's all about the Data!
9:00			**FW** - Demonstration on the Use of Census Data Highlighting Case Studies	**ST** - How to Use GeoStor 6.0	**ST** - Where's My File?! Simple Tips for a Better File Structure
9:30					**ST** - Powerful PowerPoint
10:00 BREAK To Check Out					

Save the date!

2013 AR GIS Symposium

September 9 -13, 2013

Best Western Inn of the Ozarks

Eureka Springs, AR

www.argisusers.org

Speakers

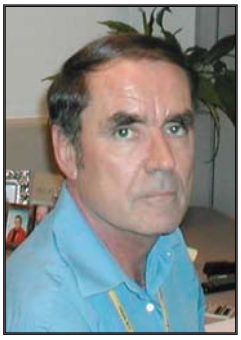
Lawrie Jordan - Keynote Speaker

Lawrie Jordan is Director of Imagery for ESRI, as well as Special Assistant to Jack Dangermond, President of ESRI. In this capacity, he serves as an advocate for successful applications of all forms of imagery within the GIS enterprise, including environmental, civil, defense and intelligence community solutions.

Mr. Jordan has over 30 years of experience as a leader in the field of image processing and remote sensing, including a long standing strategic partnership with ESRI. He has been an advisor to numerous government organizations on current and future trends involving imagery and satellite programs. His background education is in Landscape Architecture, with degrees from The University of Georgia and Harvard University.

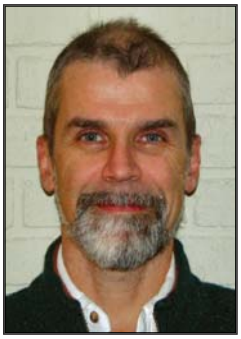
Kevin Eads

Kevin Eads is the Chief of Integrated Resources Management at Pea Ridge National Military Park, a unit of the National Park Service. He is responsible for ensuring that all mission critical or essential functions relating to cultural resource management, natural resource management, GIS programs, and collections management necessary to meet the park's purpose are performed.



Johnie Wood

Johnie Wood is the Vice President for Corporate Security & Audits at J. B. Hunt Transport Services in Lowell, AR. He is responsible for Corporate Security, Executive Protection, Information Systems Security Services, Business Continuity, Data Center Operations and IS Customer Service Operations. He received his Bachelors and Masters degrees in Criminal Justice Administration from Chapman College and Central Missouri State University, respectively.



Charlie Fitzpatrick

Charlie Fitzpatrick is the Esri School Programs Manager in Arlington, Virginia. He assists schools, teachers, administrators, and youths in understanding why and how to look at all things with a geographic eye, and how to do so using GIS, including at the Esri T3G Institute. Prior to working with Esri, Mr. Fitzpatrick spent 15 years in the classroom teaching social studies to 7th-12th graders. He holds a Bachelors of Elected Studies and a Master of Arts in Geography from the University of Minnesota.

Concurrent Session Abstracts

Wednesday - Ballroom

1:30 – 3pm
ESRI - 2011 International Users Conference Overview - Learn More about Topics Discussed at This Year's Conference

Wanted to go to the ESRI International Users Conference this year but couldn't make it? Come see what you missed as ESRI staff will give an overview of this year's ESRI Conference. What's new in ArcGIS 10 for Desktop and Server, ArcGIS Online and GIS on the Cloud are just a few of the topics that will be covered. This session will also include an exciting overview of what's to come in ArcGIS 10.1. This is your opportunity to get up to speed on the current capabilities and what the future holds for ESRI software and services.

3:15 – 4:45pm
ESRI - A Glimpse of the Near Future - A More Detailed Look into Products and Functionality that ESRI is Bringing Our Way

In this session, ESRI staff will give a more detailed look into three specific areas of interest for GIS users. Starting with enabling Web Editing for your GIS data. In ArcGIS 10 this functionality was extended to the Web APIs giving you the ability to promote GIS across your organization like never before. Next, utilizing ArcGIS Mobile to enhance workflows from field to office. This section will cover options for how to customize ArcGIS Mobile to meet the specific business needs for your organization. Finally, ESRI Staff will dive into more detail about ArcGIS Online and how this new functionality can be used to enhance your abilities to publish and share your work. Giving you and your organization greater visibility across the web.

Wednesday - Suite I

3:15 – 3:45pm
Software & Technology
High-Speed Viewshed Computation for Web Mapping Applications

Authors & Presenter: Malcolm Williamson, Peter Smith, Seth Warn, Jackson Cothren, and Amy Apon; University of Arkansas, CAST

Viewshed, or line-of-sight, calculations are an essential part of many GIS projects, yet they are rarely incorporated into Web-based mapping applications, largely because of the processing time required. This is particularly true when there is a need to calculate viewsheds from multiple points or from polyline or polygon features, which may take minutes or even hours to compute. CAST and CSCE/UA have collaborated to create a fast, accurate, multi-threaded viewshed engine and the necessary infrastructure to interface it with ArcGIS Server web applications. This engine runs approximately 20 times faster than the standard ArcGIS viewshed analysis tool, and has the additional benefit of also computing the "maximum build height" for each non-visible pixel, indicating how tall an object would have to be before it becomes visible.

3:45 – 4:15pm
Software & Technology
The Arkansas State-Wide K12 ESRI License – A Unique Opportunity for Our Kids

Author & Presenter: Jerry Prince; EAST

At the very end of 2009, the Arkansas Department of Education signed a license agreement with ESRI giving all school districts in Arkansas access to the entire ArcGIS suite for educational and administrative use. Being only the second state in the country to ink such an agreement (Hawaii was the first), this gives our kids some amazing opportunities and advantages over their peers in other states. Not only do we have the software, but we've got an incredible pool of resources to help roll out these tools into our schools, including the almost 200 EAST programs in the state, where students have been using GIS since 1997, as well as a large group of GIS professionals in the private, public, and academic sectors who would like to make a difference (that's you all!). Let's talk about how we can leverage this opportunity into something great for our state and our kids.

4:15 – 4:45pm
Public & Private Government
Using GIS Technologies for Assessment Adjustments

Presenter: Laura Brothers; Washington County

Prompt responses are warranted when disasters change the nature of property. In these cases, seeing the result of a flood or tornado only depicts one facet to help determine the amount of change. Being able to view the "before" picture as well as the "after" of a piece of property provides valuable insight. Using GIS parcel layers coupled with orthophotography, floodplain maps and oblique images are a valuable resource in analyzing the affects after a disaster. Particularly, aerial photography layers not only give a visual analysis of reported damage, it can also help in detecting unreported damage and changes to property. In cases of multiple buildings, the Department of Emergency Management address point on the aerial photo may be the best clue of the location of a residence displaced by disaster. Data sharing is essential; for example, important GIS layers not regularly used in assessment may be readily available through other agencies.

Wednesday - Suite II

3:15 – 3:45pm
Software & Technology
"Parts Is Parts" – It's all about the Data! (Session Repeated Friday 8:30am)

Author & Presenter: Scott Lane; Arkansas Game & Fish Commission

While data comes in different types, it is all data regardless of its form. The ability to effectively and efficiently use it can be greatly improved through planning and design. Geodatabases are excellent tools for data storage and sharing. This presentation will explore some of the lessons learned by the Arkansas Game and Fish Commission in their migration from shapefiles to an enterprise geodatabase. After all … IT REALLY IS … all about the data!

3:45 – 4:15pm
Software & Technology
Where's My File?! Simple tips for a better file structure. (Session Repeated Friday 9am)

Author & Presenter: Randy Puckett; ADEQ

At one time or another, we've all done the preverbal no-no with our work documents. You know what I'm talking about; you start a project and begin cramming .mxds, .pdfs, spreadsheets, shapefiles and everything else into folders that every other project you've ever done is crammed into as well. How easy is it to find your .mxd and all its associated project files a month later? A year later? Five years from now? Good luck, you'll need it.

How do you fix this? You get organized!

In this presentation, we will discuss some common problems that are perpetuated through the continued use of poor file structure. We will also discuss helpful ways to clean up "old messes," and to implement new protocols for a more organized file structure and a greater ease of use during the course of a project.

4:15 – 4:45pm
Software & Technology
Powerful PowerPoint (Session Repeated Friday 9:30am)

Author & Presenter: Becky Allison and Katy Hattenhauer; ADEQ

"Would you please make a presentation?" If this request makes your blood run cold, you're not alone. But with commercial presentation programs, speakers can now easily create a visual background of text, graphics, sound and video. Since its development, PowerPoint has been used in classrooms, boardrooms and conferences. But these audiences know that we presenters can do better. During this session, Powerful PowerPoint, a veteran audience member of mediocre presentations will detail how to build a show that will make you a better speaker with a clearer message.

Wednesday - Suite III

3:15 – 3:45pm
Public & Private Government
Benton County Sex Offender Mapping Program

Author & Presenter: Jonah Freeman; Benton County

This program is a marriage of three separate systems. The first is a data entry system for keeping track of attribute data associated with

an offender including photographs and important documents. Another system, which is created in ArcIMS, allows law enforcement to map where sex offenders live in the county and it also allows for law enforcement to print post cards for quick and easy public notification. The last system was created in ArcGIS Server and the Sample Flex Viewer; it marries the other two systems so that the points on the map are given the attributes from the first system. It also filters the data so only certain information is exposed to the public on the website. Perhaps a bigger accomplishment than the technology partnership is the partnership which has been achieved between all law enforcement in the county to use the software which has been made available free of charge.

3:45 – 4:15pm
Public & Private Government
GIS for Preparedness, Response and Mitigation for Disasters (Flood, Snow and Tornado)

Authors & Presenter: Ryan Dickerson and Marshal Watson; Benton County

Benton County has utilized Geographic Information Systems (GIS) and other geospatial technologies to assist in preparedness, management, and mitigation of a variety of disaster and severe weather events. In 2011 Benton County has used imagery datasets specific to the Cincinnati tornado, utilized GPS devices to monitor road department vehicles during severe winter storms, and conducted extensive GIS mapping during extensive spring flooding to support emergency response and recovery efforts.

4:15 – 4:45pm
Public & Private Government
Benton County Health Department Food Inspection Website

Author & Presenter: Jonah Freeman; Benton County

Through collaboration with the Benton County Health Department, three systems work together to provide the public with food inspection reports through a map-based website. The first system is a file structure where the food inspection reports are stored. This system has to be maintained very carefully because the direct web links from the map are based on the names of these files. The second system is an ArcIMS website for Health Department use only which allows Health Department staff the ability to map the food institutions and give them a name which is used to join with the file structure in the first system to provide a quick link from the map to the document. The final system is an ArcServer Sample Flex Viewer website which allows the public to browse through the map and click on food institutions which opens the inspection report directory.

Thursday - Ballroom IA

9 – 9:30am
Software & Technology
Creating a Statistical Exploratory Data Analysis Tool using the ArcGIS Javascript API

Author & Presenter: Don Catanzaro; Catanzaro Consulting

Most online GIS applications are based upon simple GIS overlays. However, with the advent of the ArcGIS Application Programmer Interface (API), online GIS applications now have the ability to be linked to various other webtools and thus have the potential to be Exploratory Data Analysis (EDA) tools.

This paper shows how using ArcGIS Javascript API, one can build an online GIS EDA for a logistic regression. The user is given the ability to change two important model parameters – first how the binary dependent variable is classified and second, the probability by which the outcome of the logistic regression is classified as a binary variable. As the model parameters change via the slider, the output of the logistic regression is dynamically displayed as a map.

The method for implementing this GIS EDA is shown for a project which uses landscape variables to predict whether a threshold of Lyme disease cases is exceeded as well as an example using US Census Bureau data.

9:30 – 10am
Software & Technology
GIS and Floodplain Management

Author & Presenter: Lee Beshoner, PE, CFM; FTN Associates, Ltd.

Geographic Information Systems (GIS) is an important tool that is being used for hydrologic and hydraulic studies, as well as floodplain management. GIS has become the centerpiece of how FEMA develops and distributes Digital Flood Insurance Rate Maps (DFIRMs)

and Risk Mapping, Assessment, and Planning (RiskMAP) products. Having GIS skills and capabilities related to floodplain management is more important now that FEMA has transitioned to all digital projects. The use of GIS allows communities the ability to combine multiple digital dataset layers (e.g. aerials, floodplain boundaries, etc) together to perform their floodplain management duties.

This presentation is designed to cover the basics of FEMA's DFIRM and RiskMAP products and how local floodplain managers and staff can use this information in GIS, as well as detailing some examples of how GIS can be used with FEMA flood hazard data to aid in local floodplain management.

10 – 10:30am
Public Health & Safety
Northwest Arkansas Red Cross Emergency Resource Mapping Project

Authors: Debbie Lamb, Janice Taylor, Karrie Hutchins, Bill Mills; EAST Facilitators & Jeff Patrick; NWA Red Cross

During the 2011 school year, four EAST schools teamed up with the Northwest Arkansas chapter of the Red Cross to develop a live, interactive map atlas of Emergency Response facilities within 18 counties. The project was an EAST "After Hours" program and included participants from Har-Ber High School, Cedarville High School, Springdale High School and Berryville High School EAST programs. These 24 students and four facilitators collaborated with staff from the Northwest Arkansas Chapter of the American Red Cross and assisted them with creation of emergency response datasets, maps and materials for their emergency map atlas. The Northwest Arkansas Red Cross District Office is responsible for a total of 19 counties across Arkansas, and previously did not have this type of planning information compiled into easy to use digital map products. The resulting digital media products were prioritized for communities determined to have the greatest need but the compiled map data and map services are accessible online for everyone; free of charge.

10:45 – 11:15am
Software & Technology
Integrated National Resource Inventories using Trimble Juno and ESRI ArcPad Applications Built for the Ozark-St. Francis National Forests

Author & Presenter: Chip Stokes; USFS - Boston Mountain and Magazine Ranger Districts

Consistent inventory for wildlife, plants, non-native invasive species (NNIS), fire, timber, roads, trails, and other resources is always a challenge. Utilizing ArcPad Studio to build custom inventory forms and geospatial feature collection routines to run on the Trimble Juno has made field work and data management more efficient.

11:15 – 11:45am
Software & Technology
Forest Monitoring with Imagery Analysis and GPS

Author & Presenter: Jim Jolley; Arkansas Forestry Commission

The Arkansas Forestry Commission monitors voluntary Best Management Practices implementation and damage due to natural causes on Arkansas' forests. Combining aerial surveys using a touchscreen laptop with GPS and aerial/satellite imagery analysis, forest damage is estimated and sound logging practices voluntary compliance is evaluated. The presentation will demonstrate techniques and equipment used to accomplish the forest monitoring. The presenter will be Jim Jolley, Forest Legacy/GIS Forester for the Arkansas Forestry Commission.

1:30 – 2pm
Framework
NHD: Stewardship Progress in Arkansas

Author & Presenter: Katy Hattenhauer; ADEQ

The Arkansas Department of Environmental Quality (ADEQ) officially accepted the role of the NHD Steward for the State of Arkansas on October 15, 2008. Since that time the AR Technical Working Group (TWG) has grown and continues to develop policies and instructions to make the NHD in AR more outstanding. The TWG has developed and attended meetings and trainings. A status map has been made to assist the TWG in their editing processes. An upcoming web edit tool, which will be disbursed for public use, will also aid the TWG in the editing process of the NHD. With all of these things combined, the TWG is moving forward to develop and maintain higher resolution NHD datasets across the state.

2 – 2:30pm
Framework
Creating Local Resolution NHD with LiDAR Data

Author & Presenter: Dave Arnold; USGS – NHD Partner Support Region 5

The National Hydrography Dataset (NHD) is a multiple resolution geodatabase containing hydrography features, including surface water streams, water bodies, and a number of tables defining relationships and metadata. The hydrographic features are correlated with the certified Watershed Boundary Dataset (WBD). The NHD was originally designed at a scale of 1:100,000 from USGS Digital Line Graphs (DLG) and the Environmental Protection Agency (EPA) Reach File Version 3 (RF3). The NHD was later upgraded to a resolution of 1:24,000 however, in some states the need has arisen to further increase the scale, known as local resolution. There are a number of ways to create local resolution hydrography but one that has recently come into focus is Light Detection and Ranging (LiDAR). Placing LiDAR hydro break lines in the NHD provides some specific technical challenges, but once overcome it is possible to have NHD data at a very large scale.

2:30 – 3pm
Framework
Implementation of the USGS StreamStats Program in Arkansas

Author & Presenter: Aaron Pugh; USGS – Arkansas Water Science Center

The nation depends on the U.S. Geological Survey (USGS) to provide hydrologic information needed to protect people and property from floods, and to protect water quality. Streamflow statistics, such as the 1 percent Annual Exceedance Probability, stream traveltimes, and the 7-day 10-year low flow (Q7,10), frequently are used by engineers, land managers, biologists, and others to help in their decision making processes. StreamStats is an integrated GIS application that uses ArcIMS, ArcSDE, ArcGIS, and the ArcHydro tool to make the process of computing streamflow statistics faster, more accurate, and more consistent than manual methods. StreamStats incorporates (1) a map-based user interface for site selection, (2) a database that provides streamflow statistics and other information for data-collection stations, (3) the ArcHydro tool for determining drainage basin boundaries and measuring physical characteristics of drainage basins at ungaged sites, (4) a program that estimates streamflow statistics using regional regression equations, and (5) a GIS database to display maps and physical characteristics of the drainage basins.

3:15 – 3:45pm
Framework
Locating People, Places and Events Using an Address

Author & Presenter: Adrian Clark; AGIO

Street level geo-coding is an adequate means of locating addresses for many purposes but it lacks the positional accuracy and complete attributes for many others. Therefore, the AGIO has been working with county addressing agencies since 2009 with the goal of producing a statewide physical address point feature layer. Since that time, we have made significant progress in developing address files across the state.

In December of 2010, our agency contracted with Connect-Arkansas, using a grant provided by the National Telecommunications and Information Administration, to target 28 counties to assist them in developing GIS address point features.

This presentation will show the status of address point mapping in the state, explain why we must standardize the address and centerline features, show how it is done, and discuss completion schedules and maintenance processes. The presentation will benefit all individuals and entities who work with addresses, which at some level includes everyone!

3:45 – 4:15pm
Framework
Use of LiDAR in Two-Dimensional Finite Element Modeling Simulations of Selected Flood Exceedence Probability Elevations of Big Creek Basin near Jonesboro, Arkansas

Authors & Presenter: Katherine R. Merriman and Brian R. Clark; USGS – Arkansas Water Science Center

The U.S. Geological Survey (USGS) in cooperation with the AHTD is evaluating streamflow and water surface elevations under various bridge construction scenarios using two-dimensional (2D) finite element modeling in the Big Creek Basin near Jonesboro, Arkansas. Simulated floods include the 0.1, 0.02, 0.01, and 0.002 annual exeedance probabilities (10-, 50-, 100-, and 500-year recurrence intervals). Because of the low relief of the area and the complexity of the flow of water between levees and local rock dams, high-resolution LiDAR was required for the construction of the 2D model. LiDAR was collected at a point density of 2.5 feet and a vertical accuracy

of 18.5 centimeters and processed using the 3D Analyst Tools within ArcGIS 10.0. These data were incorporated into the 2D model and merged with survey data collected on State Highway 226 and bathymetry of the thalweg of Big Creek to create an elevation mesh surface. This mesh surface is used to assign elevations for the nodes of the 2D model.

4:15 – 4:45pm
Framework
The National Map Viewer Base Map and Services

Author & Presenter: Calvin Meyer; USGS - NGTOC

The U.S. Geological Survey (USGS) has modernized visualization and download capabilities to improve user experience of The National Map (TNM). Managed by the USGS National Geospatial Program, TNM has transitioned its assets and viewer application to a new visualization and delivery environment that includes interoperable base maps, integrated download services, and an improved viewer platform.

Thursday - Ballroom IB

9 – 9:30am
GIScience
Indiana Bat Habitat Restoration Project – Syalmore Ranger District

Author & Presenter: Jeremy Evans; USFS - Sylamore-St. Francis Ranger Districts

Five caves used as hibernacula by the endangered Indiana bat occur on the Sylamore Ranger District. The Forests' Land and Resource Management Plan (LRMP) directs managers to use watershed boundaries and recognizable landmarks such as roads, streams and bluff lines to identify primary and secondary conservation zones that extend out one-quarter and five miles, respectively, surrounding Indiana bat hibernacula. Optimal habitat conditions would be restored and maintained through timber harvests, thinning, prescribed fire and associated actions. Utilizing an adaptive management approach, the effects of large geographic prescriptions will be analyzed, and an implementation tool kit developed utilizing an "if/then" approach. An emphasis will be placed on monitoring and will require the involvement of a wide variety of governmental and non-governmental partners. This project is one of five landscape restoration project proposals selected by the National Headquarters. GIS support and analysis will be utilized through the entire life of the project.

9:30 – 10am
GIScience
Forest Activities Database – Tracking Changes in Vegetation and Wildlife Habitat Components

Author & Presenter: Brian Barns; USFS - Ozark-St. Francis National Forests

Tracking changes is important for evaluating the health of a community, its effects to wildlife populations, and in showing the progress toward the desired future conditions stated in the Forest Plan. Changes are monitored and a report is generated showing trends in the ecological communities as well as Forest Plan Management Areas. Examples of activities tracked and monitored include the abundance of forest regeneration, age class composition, and the proportion of communities burned at desired intervals and seasons.

10 – 10:30am
GIScience
Integrating Geospatial and Sensor Technologies for Helping Arkansas Farmers

Authors & Presenter: D. Traywick and D. Saraswat; University of Arkansas

The adoption of Precision Agriculture (PA) technology by producers in Arkansas is increasing. This presentation will highlight the use of geographic information system for assessing variability in soil properties as sensed by various field sensors such as soil electrical conductivity meter, real time kinematic GPS, and soil pH sensor. This information has potential to improve management practices for various crops produced in the state.

10:45 – 11:15am
GIScience
Use of Geographic Information Systems to Develop Surface-Water Models

Authors & Presenter: Drew A. Westerman and Rheannon M. Hart; USGS – Arkansas Water Science Center

The Next Generation: A GeoSpatial Voyage

The U.S. Geological Survey (USGS) develops surface-water models of watersheds throughout the nation to better understand and document the hydrologic effects of precipitation and resulting streamflow dynamics. The USGS relies on Geographic Information Systems (GIS) to accurately construct, implement, and analyze surface-water models. These models can be used to construct the shape and relative timing of flood peaks, identify the approximate timing and contribution of tributary flows, and quantify the amount of flood inundation. Building the framework for a surface-water model requires using the full functionality of GIS tools. This includes integrating custom Python™ scripting, generating ARC Macro Language (AML) applications to use with ArcInfo Workstation, and intensive computer processing. The modeling process can include geo-referencing channel geometry data, acquiring and distributing Next Generation Radar (NEXRAD) precipitation over the watershed, calculating watershed characteristics with Arc Hydro Tools, and creating final maps showing results from the surface-water model.

11:15 – 11:45am
GIScience
Hydrofracking-Waste Disposal Could Induce/Trigger Potentially Damaging Earthquake(s)

Authors & Presenter: S.M. Ausbrooks and S. Horton; Arkansas Geological Survey & The Center for Earthquake Research and Information – University of Memphis

Waste-water, a by-product of hydraulic fracturing, is being injected under pressure into subsurface rocks in an expanding number of disposal wells across the United States. The U.S. Environmental Protection Agency provides Underground Injection Control regulations, but these regulations provide no standard based on potential induced/triggered earthquakes to limit the proximity of waste-disposal wells to critical facilities (e.g. hospitals, schools, dams, and nuclear power plants) or to active seismic zones. Here we name the Guy-Greenbrier Fault, a previously unknown fault in north-central Arkansas, illuminated by over twelve-hundred (1,200) earthquakes (M≤4.7) that occurred between September 2010 and May 2011. We establish a plausible hydraulic connection between the injection intervals at three waste-disposal wells and the nearby Guy-Greenbrier Fault. We conclude that injection of fluids at these wells could increase pore pressure in the fault zone and induce/trigger potentially damaging earthquake(s). The maximum credible earthquake on this fault is M5.6 – 6.0.

1:30 – 2pm
GIScience
Mapping of Arkansas Historic Wetland Forests using Declassified Imagery

Authors & Presenter: Malcolm Williamson, Jackson Cothren, John Wilson and Bruce Gorham; University of Arkansas, CAST

According to the Arkansas Wetland Strategy, the Mississippi Delta region of Arkansas has lost more than 7 million acres of forested wetlands between 1970 and 1989 - more than any other state. Although much of this loss occurred during the advent of the mechanized farming, substantial acreage of wetlands were still being converted to agriculture as late as the 1970s. This conversion activity predates the Landsat series of earth-imaging satellites and so it has not been practical to attempt to map a "snapshot" of the extent of these wetlands prior to federal legislation which eventually halted most wetland loss. With support from ANRC, CAST processed declassified DOD high-resolution satellite imagery. The result is a mosaic of panchromatic high-resolution images of the Delta region as it appeared in 1969. We discuss the methodologies used for the project and demonstrate an advanced web-mapping application and service developed to distribute the results.

2 – 2:30pm
GIScience
The Role of GIS in Cultural Resource Management and Archeology in the Central Arkansas River Valley

Authors & Presenter: Jami J Lockhart and George Sabo III; Arkansas Archeological Survey

Multiscalar GIS applications are supporting cultural landscape analysis, remote sensing, and archeology in the central Arkansas River valley. This paper highlights the role of GIS technology in long-term research and land planning at the internationally-known, prehistoric/protohistoric Carden Bottoms archeological site (3YE25) near Dardanelle, AR. In 2009, the Arkansas Archeological Survey received a National Endowment for the Humanities grant to conduct fieldwork and research in this area where little is known about the lifeways of past cultures. Coincident with the start of that project, the National Resource Conservation Service requested that the Survey provide an archeological impact assessment associated with planting hundreds of trees at the Carden Bottoms site, creating a long-term conservation area. GIS is being used to analyze regional and intrasite settlement patterns, accurately locate archeological features for protection, and to pinpoint the excavation of multiple prehistoric structures discovered using near-surface remote sensing.

2:30 – 3pm
GIScience
St. Louis, Missouri: Then and Now

Author & Presenter: Christopher Davis; Arkansas Highway and Transportation Department

St. Louis, Missouri, like many rustbelt cities in the Midwest has seen ups and downs the past fifty years. Once a major manufacturing and shipping hub for the United States, St. Louis held prominence on the world stage as well, hosting both the Summer Olympics and World's Fair in 1904. Major manufacturers and corporations made St. Louis the jewel of the Midwest with Ralston-Purina, Emerson Electric, May Department Stores and most notably Anheuser-Busch bringing tens of thousands to the city for employment and a chance at a better life. This progress did not last, and St. Louis' population dwindled, from the 4th largest in the United States in 1900, to the current 2010 ranking of 58th. These changes can be seen on the current landscape, in various settings showing an ever changing city, both real and unreal.

3:15 – 3:45pm
GIScience
Arkansas Resource Assessment Project

Authors & Presenter: Pam Cooper, Luis Hernandez, Mike Sullivan; NRCS & Hanna Ford, Mark Cooper, Brian Culpepper and Jack Cothern; CAST

The Center for Advanced Spatial Technologies (CAST) partnered with the Natural Resource Conservation Service (NRCS) – Little Rock office to complete a statewide Resource Assessment for Arkansas.

The goal of the Arkansas resource assessment is to prioritize future NRCS activities statewide based upon Arkansas' specific resource concerns summarized at the watershed level. CAST conducted the geospatial analysis and modeling of 29 unique resource concerns within Arkansas following input, collaboration and guidance provided by the NRCS leadership and their conservation partners.

The project team collected and used GIS datasets that provided the best available; ready to use statewide metrics to address each of the following NRCS resource concern themes: Soils, Air, Water, Plants, Animals, Humans, and Energy. The challenge with this project was our compressed timeframe coupled with extensive input datasets, analysis and technical guidance required by so many conservation professionals. We wish to share our story; our results, and lessons learned during this collaborative project.

3:45 – 4:15pm
GIScience
Geospatial Technologies for Planning and Implementation of Projects to Reduce Erosion and Aquatic Impacts from Stream Banks on Ozark Rivers

Author & Presenter: Ethan Inlander; The Nature Conservancy

Historic and contemporary land use changes have contributed to altered watershed hydrology in many Ozark rivers and streams. Reduced flood water attenuation and flashier peak flows have often led to unstable stream channels and banks, resulting degradation in habitat and water quality. A variety of public and private entities work to identify the causes of river instability, to map priority locations for stream restoration or stream bank stabilization, and design, implement and monitor restoration actions. Geospatial technologies, including GPS, GIS, remote sensing, and modern surveying instruments, serve as critical tools for these activities.

4:15 - 4:45pm
Decimeter Accuracy, Trimble Productivity, and Handheld Convenience

Author and Presenter: Chad Hicks, Navigation Electronics, Inc.

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Environmental Management: Weed management, water debris management, pollution mapping, environmental incident mapping, sample gathering, agricultural subsidy determination.

Thursday – Ballroom II

9 – 9:30am
Software & Technology
Disseminating GIS Data for General Public Consumption Using Google Earth

Author & Presenter: Mike Jezierski; Arkansas Game & Fish Commission

State and federal agencies have begun embracing SDE geodatabases that feed flex- based viewers, enabling their constituents to view up-to-date GIS Data from their La-Z-Boy. However, some users still prefer the simplicity and familiarity of Google Earth. By using the "Export Layer to KML" tool in ArcToolbox, numerous layers of data can be packaged together into a single KMZ file for consumption. This presentation will discuss the methods used to distribute GIS data for use within Google Earth, and how those KMZ files can then be converted into other GPS-friendly formats.

9:30 – 10am
Software & Technology
Utilizing the Google Maps API for interactive web-based mapping applications

Author & Presenter: Nathan Taylor; Arkansas Geological Survey

In June 2005 Google released the Google Maps Application Programming Interface (API) only months after Paul Rademacher hacked Google Maps to create HousingMaps (housingmaps.com), the first geo-mashup. Since then, it has matured into a widely used resource for developing free and robust web-based mapping applications. The Arkansas Geological Survey will present how they have employed the API for presenting geospatial data on the web and provide resources for those interested in doing the same.

10 – 10:30am
Software & Technology
SQL Spatial: Using The Power of SQL with GIS

Author & Presenter: Jason Tipton; Arkansas Geological Survey

SQL Server 2008 came with an exciting new feature: SQL Spatial. This introduced a new spatial datatype. Right out of the box, SQL comes with tools to perform advanced spatial queries, and with ArcGIS 10, data stored in this format can be read directly into ArcGIS not as a table, but as a spatial layer without the using the SDE translator. This advancement is very exciting and promising in how we input and retrieve spatial data.

The presentation will include a case study in how we have used SQL Server to solve spatial problems that would have otherwise required manual processes and python coding. While python coding is great, the code is only good for your ArcGIS users. With the code in the database, more users and applications can benefit from it. Also, SQL queries can perform the same tasks that python can, except with lightning speed.

10:45 – 11:15am
Software & Technology
ArcGIS Server: No Really, It's Just Software

Author & Presenter: Russell Gibson; City of Fort Smith

ArcGIS Server provides a complete, server-based GIS which supports the use of centrally-managed spatial data for mapping and analysis and provides a development platform for web-based applications. This session will introduce ArcGIS Server and discuss installation, configuration, and use of the product. Attendees will discuss the processes for publishing map documents, connection to relational databases, managing users and other management techniques.

Concurrent Session Abstracts continued on page 25

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The USGS serves the nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.

The National Geospatial Program provides leadership for USGS geospatial coordination, production and service activities. The Program engages partners to develop standards and produce consistent and accurate data through its Geospatial Liaison Network. Operational support is provided by the National Geospatial Technical Operations Center. These and other Program activities that are essential to the National Spatial Data Infrastructure (NSDI) are managed as a unified portfolio that benefits geospatial information users throughout the Nation.

The Water Resources Discipline (WRD) mission is to provide reliable, impartial, timely information that is needed to understand the Nation's water resources. WRD actively promotes the use of this information by decision makers to minimize loss of life and property as a result of water-related natural hazards, such as floods, droughts, and land movement; effectively manage ground-water and surface-water resources for domestic, agricultural, commercial, industrial, recreational, and ecological uses; protect and enhance water resources for human health, aquatic health, and environmental quality; and contribute to wise physical and economic development of the Nation's resources for the benefit of present and future generations.

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The National GIS Program provides leadership in the planning and execution of enterprise GIS operations and services, and promotes the efficient capture, management, stewardship, and dissemination of geospatial data.

The GIS Program also facilitates the development and maintenance of data standards and the management of GIS-related tools, and collaborates with Chief Information Office staff on geospatial architecture design, initiatives, and operations.

Forest Service National Remote Sensing Program

The National Remote Sensing Program provides leadership in the planning and execution of national remote sensing programs; provides advice and guidance to Forest Service sponsors; serves as a liaison to other federal agencies; and represents the interests of the Forest Service on a number of committees including the Civil Applications Committee, the USDA Remote Sensing Coordination Committee, the Tactical Fire Remote Sensing Advisory Committee, and the Mobile Geospatial Technology Advisory Group.

The program also provides critical input to the National Agricultural Imagery Program (NAIP) during the annual planning and award cycle to insure that the Forest Service base imagery needs are met. The National Remote Sensing Program serves as the 'inside the beltway' presence for the Remote Sensing Applications Center (RSAC), and maintains close communication and coordination with RSAC.

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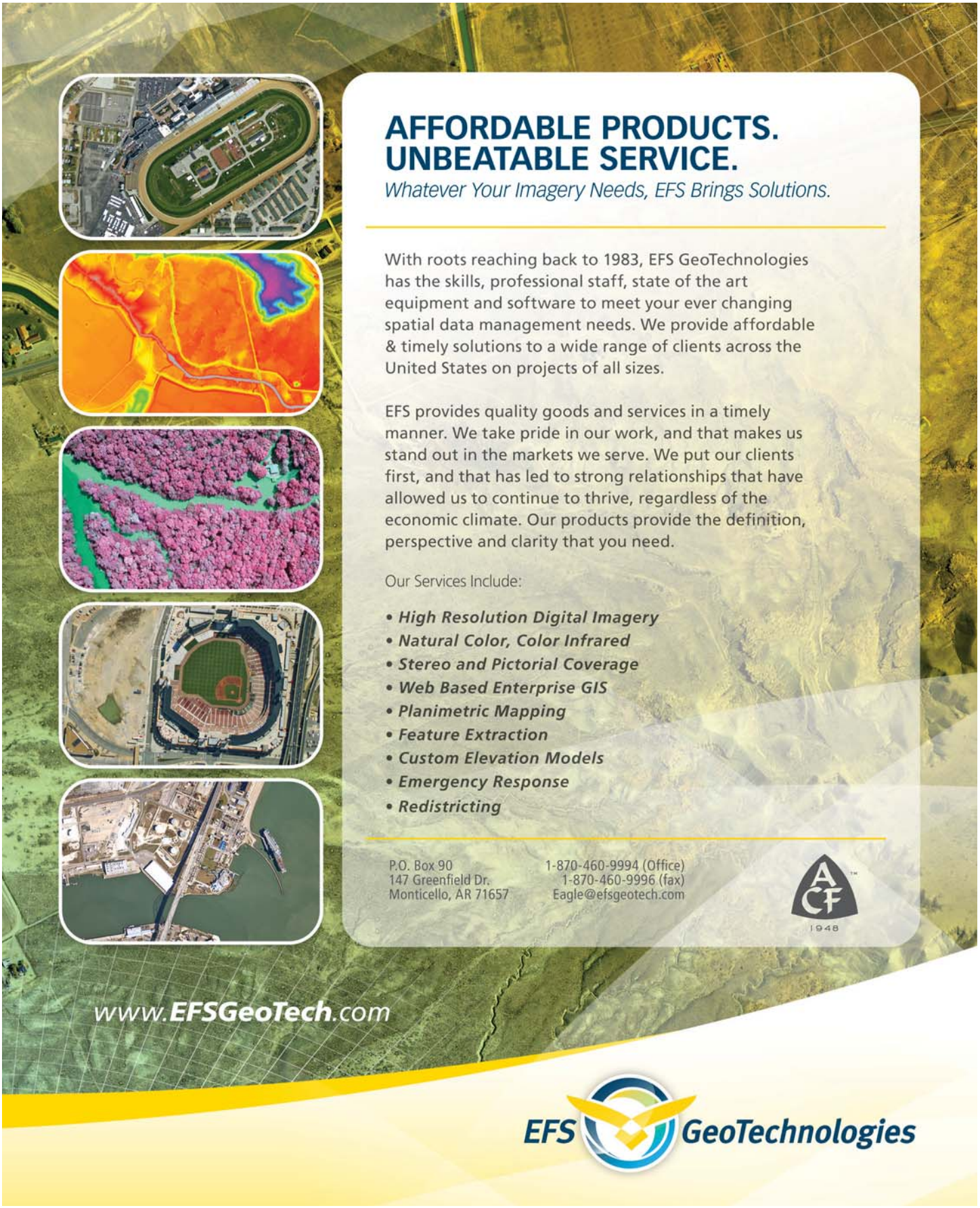

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The Center for Advanced Spatial Technologies (CAST), located at the University of Arkansas, focuses on research, education, outreach, and applications in geomatics, including GIS, geospatial analysis and modeling, high density survey, enterprise spatial databases, remote sensing, digital photogrammetry, geospatial interoperability and other areas. Much of CAST's research efforts involve new approaches to spatial data collection, storage and innovative use in decision support within Arkansas and beyond. Visit our website: http://cast.uark.edu

RGIS Mid-South Office

While the Center is involved in a broad range of geospatial research and development of new approaches to the acquisition, management and analysis of spatial information, a key focus area is also our public outreach initiatives within Rural America. We are able to accomplish these community and local government "decision support" initiatives through a long-term USDA-NIFA funded effort called "The National Consortium for Rural GeoSpatial Innovations (RGIS)".

The RGIS consortium consists of 8 unique sites distributed around the United States which assist state, tribal, regional and local governments as well as non-profit and private organizations in the implementation and adoption of advanced geospatial technologies. We are regional geospatial resources focused upon supporting geospatial technology adopters with free and vendor-neutral technical advice much like the role of our USDA county extension agents.

The goal of RGIS is to improve the quality of life, environmental health, and economic competitiveness of rural communities. Just as the Rural Electrification Authority brought electricity to much of under-served rural America in the early 20th century, RGIS' goal is to help bring geospatial technologies and the benefits of the information age to rural America. Today, local units of government are building and maintaining key components of our national geospatial information technology infrastructure and we aim to support the source of our GIS infrastructure. Please visit: www.ruralgis.org to learn more about the RGIS initiatives.

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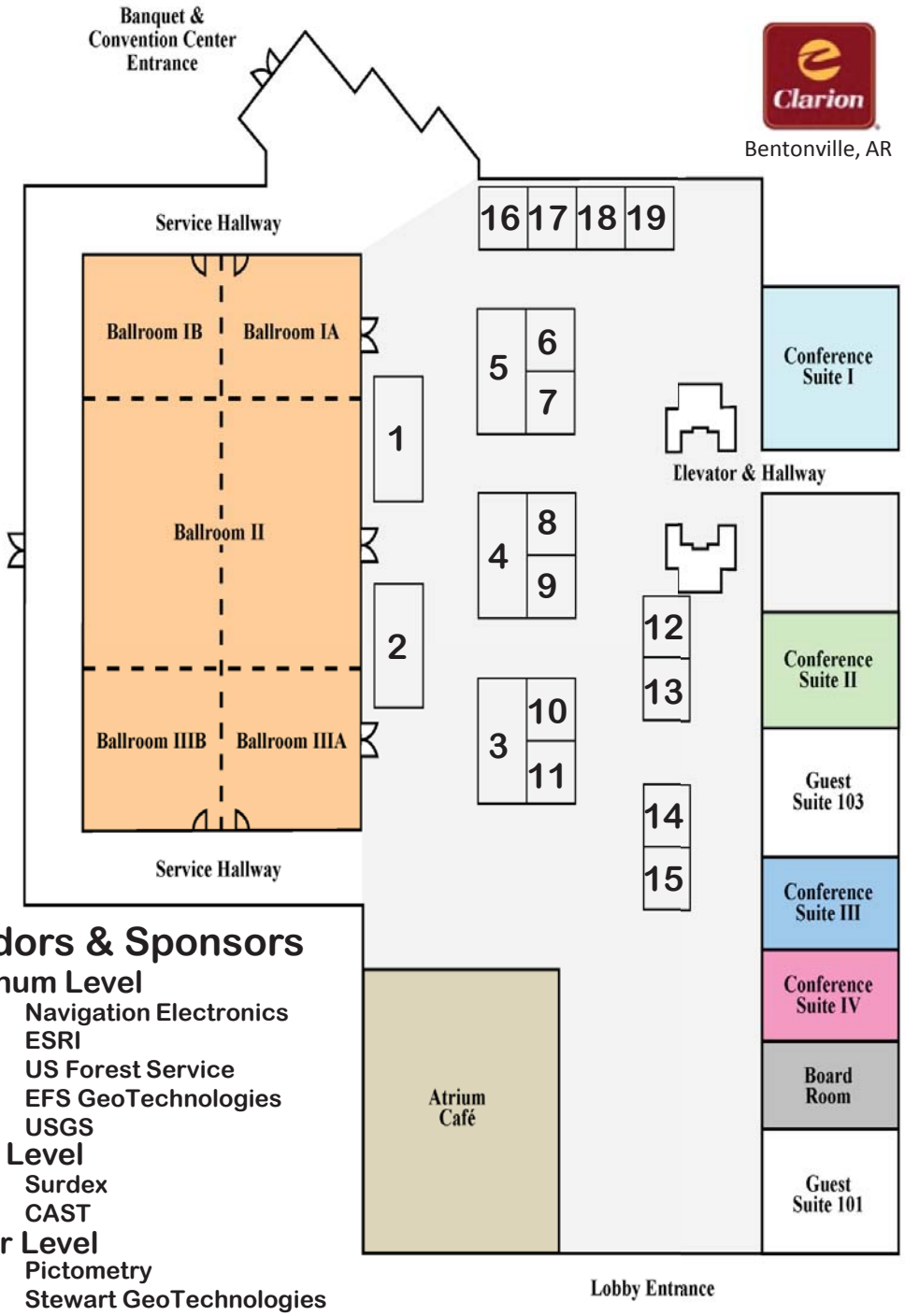

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Concurrent Session Abstracts continued from page 16

Thursday – Ballroom IA

11:15 – 11:45am
Software & Technology
Building Web Mapping Applications Using ArcGIS Server

Author & Presenter: PAgis

PAgis recently redesigned the agency's website and migrated their old ArcIMS web mapping applications to the ArcGIS Server platform. In this session, PAgis will walk you through the process they used to implement the ArcGIS Server platform as well as the issues they encountered and what they did to overcome the obstacles. PAgis staff will describe their experiences with the hardware selection and their experiences implementing the Adobe Flex API as well as ArcGIS Explorer Online and the ESRI iOS mobile application environment. PAgis is an independent government agency specializing in the acquisition, maintenance and distribution of GIS related data within Pulaski County, Arkansas. We maintain a high quality, centralized, enterprise class geodatabase with many layers that are updated and published monthly. PAgis' daily focus is on maintenance of framework data layers that provide the foundation for each member agency's custom GIS applications.

1:30 – 2pm
Remote Sensing
LiDAR Specifications and Flight Planning

Author & Presenter: Kenny Legleiter, GISP; Wilson & Company, Inc.

Over the past ten plus years, LiDAR projects have used a variety of specifications to define their requirements. A few specifications and guidelines have been developed by FEMA, ASPRS, and the National Digital Elevation Program and these have been used heavily for LiDAR projects. In the last few years, the USGS has developed and pushed their specification, which has now become the defacto specification. In addition to LiDAR accuracy specifications, LiDAR flight planning is a key component of a successful project. This presentation will focus on these two topics and will provide a good overview of current LiDAR specifications and what is most important to a client in LiDAR flight planning.

2 – 2:30pm
Remote Sensing
LiDAR Data Post-Processing and Formats

Author & Presenter: Randy Mayden; Surdex

The presentation will focus on the steps involved in post processing of aerial LiDAR data and the generation of data products for GIS users. The presentation will provide an overview of flight path processing and then go into the initial steps of bare-earth processing and return classification. Flight strip adjustments will be discussed and final product accuracy analysis will be evaluated. The presentation will also address file formats that are useful to the GIS user.

2:30 – 3pm
Remote Sensing
ArcMap Tool for Comparing Digital Elevation Models (DEM) with Differing Resolutions

Authors & Presenter: Adam Barnes and John Wilson; University of Arkansas, CAST

This presentation will describe a GIS tool created with ArcMap's ModelBuilder intended to compare Digital Elevation Model (DEM) height values from two DEMs with differing resolutions. As opposed to pixel-to-pixel raster math, this model extracts a neighborhood max and min values from the higher resolution input DEM for each pixel footprint of the input lower resolution DEM. The output of the tool is a raster layer indicating areas where the DEMs differ by more than the input threshold. Statistics for these areas - including area, slope, and aspect - are then calculated and supplied to the user.

3:15 – 3:45pm
GIScience
The Battle of Prairie Grove: An Interactive Experience of a Historic Battlefield Landscape

Authors & Presenter: Angelia Payne, Snow L. Winters and Fred Limp; University of Arkansas, CAST

The Prairie Grove Battlefield State Park was the location of one of the most significant U.S. Civil War battles in the west. CAST, along with some state agencies, are working to recreate the battle using historic parcel maps, augmented with civilian accounts, historic photos, and hand-drawn maps of the area. The result is a nearly complete, fully 3D historic landscape that is used as a basis for depicting the events of the Battle of Prairie Grove.

A web-based interactive GIS tour of the battlefield landscape will be made public July 2011. All events are part of an immersive map that the user controls to discover the details of the battle as it unfolds, a playable timeline is also presented that lets the user watch the troop movements as the battle progresses. This innovative website coincides with exhibit renovation at the park museum and will be integrated into the park's new interactive exhibits.

3:45 – 4:15pm
GIScience
In Search of the Little Rock, Maumelle and Western Railroad

Author & Presenter: Mike Hood; Little Rock Public Works

At the turn of the 20th Century, the mountains west of Little Rock held one of the last expanses of virgin timber east of the Rocky Mountains. Timber barons would build huge steam powered sawmills and short-line railroads to access the timber, and in 1904 Andrew Johnson Neimeyer moved his sawmill operation to just south of Little Rock and began construction on what would become the Little Rock Maumelle and Western Railroad. But, by 1921, whatever timber that could be accessed by railroad in the area had been cut, and the road was partially abandoned.

It has been nearly 100 years and it was thought little trace of it lingered. No map remained and much of the route was obliterated by development. Through the use of GIS, the route has been traced and field verified using clues to identify where the line traveled including changes in vegetation, contour information, and county parcel information.

4:15 – 4:45pm
GIScience
Comparison of NEXRAD and Rain Gauge Precipitation Estimates in an Arkansas Watershed

Authors & Presenter: B. Hancock, N. Pai, and D. Saraswat; University of Arkansas

Precipitation data is a primary input to various eco-hydrological applications such as watershed modeling and flood forecasting. Two major sources of this input data are National Climatic Data Center (NCDC) rain gauge data and the Next-Generation Weather Radar (NEXRAD) estimates. While rain gauge data was used traditionally, NEXRAD data, due to its high spatial and temporal resolution is preferred but has not yet been tested for reliability in Arkansas. The objective of this study was to compare spatially interpolated NEXRAD with local rain gauges data in the Beaver Reservoir watershed (drainage area 5625 km2) in Northwest Arkansas. Monthly statistical results, calculated over a 15 year period, showed that the comparison of NEXRAD and rain gauges had insignificant differences ($p<0.05$) for all months except May. The results provide confidence in the usage of NEXRAD precipitation data, especially in areas where rain gauge data is unavailable or has a sparse network.

Thursday – Ballroom IIIA

9 – 9:30am
Public Health & Safety
Updating City Limits and Utilizing the LRS Virtual Location Tool at the AHTD

Author & Presenter: Sharon Hawkins; AHTD

At the 2007 GIS Users Forum Symposium, the AHTD presented on its part in plotting, updating and maintaining city limits around the state. This will be an update of how far we've come since then, what our plans for the future are, and how we need your help. In addition, the AHTD, with the help of Google Earth, has implemented a LRS Virtual Location tool to aid law enforcement and AHTD staff in accurately locating crash event on Arkansas' Federal Aid System. You will see how this tool is used and some other tools in place that can help us perform accurate analysis with our event data.

9:30 – 10am
Public Health & Safety
Benefits of GIS in Search and Rescue

Author & Presenter: Carey Wilcoxson; Arkansas Game & Fish Commission

The GIS section of the Arkansas Game & Fish Commission was asked by Wildlife Officers to help on 2 search and rescue cases in 2006 in North Arkansas. The first case was a multiple drowning on a large Corps lake. The bass boat GPS tracklog was used to locate the accident scene and to develop a search plan for the victims based on the boat drift path after the accident. The second case was to determine the last known location of a missing girl and to determine a search plan based on phone company triangulation of the girls cell phone. Both cases were solved in short order. GIS was primarily used to document the cases for legal and reference purposes. GIS and GPS instructional classes were developed to assist Wildlife Officers with cases such as these.

10 – 10:30am
Public Health & Safety
Emergency Response: The Aerial Imagery Approach

Author & Presenter: James Hartshorn; EFS GeoTechnologies

Modern technology enables rapid acquisition, processing and delivery of digital aerial imagery for emergency response situations. Proper planning and preparedness before a natural disaster occurs is vital to response and recovery. Outlining the correct aerial imagery specifications in response to an emergency event is critical to the success of efficient recovery.

10:45 – 11:15am
Public Health & Safety
GIS Support on Fires through the Wildland Fire Decision Support System (WFDSS)

Author & Presenter: Tina Rotenbury; USFS – Ozark-St. Francis National Forest

The WFDSS system assists managers and analysts in making strategic and tactical decisions for fire incidents. Over the past 30 years, fires have dramatically increased in size and complexity, often stretching the capacity of the management systems in place. The WFDSS project evolved from the need to streamline and improve the decision-making processes, as well as take advantage of improvements in technology, fire modeling, and geospatial analysis. The fine tuned fire spread models within the WFDSS system can now be exported to a GIS platform and utilized to look at situations like how many structures will need to be protected per rate of fire spread over time.

11:15 – 11:45am
Public Health & Safety
National and Regional Common Operating Picture to support Wildfire – Utilizing a Geospatial Viewing Platform as an Incident Management Planning and Operational Tool

Author & Presenter: Tammy Hocut; USFS – Ozark-St. Francis National Forest

Geospatial tools offer an excellent chance for incident responders to increase their situational awareness and improve decision making on incidents. Imagine being able to draw what you're seeing into a networked mobile device from a ridge-top in the wilderness, add terrain matched photos, locate and describe helispots and slingsites, all while simultaneously being viewed at the Incident Command Post, helibase, and local unit offices. Imagine briefing the public using near real-time information.

A geospatial viewing platform as an incident management planning and operational tool utilizing Google Maps, Google Earth, and Keyhole Markup Language (KML) format is a very powerful tool!

1:30 – 2pm
Public & Private Government
Analyzing the Impact of State Fleet Vehicles on Arkansas' Biodiesel Industry

Author & Presenter: Mark Cooper; University of Arkansas, CAST

This study examines the impact of Arkansas legislation passed in 2007 requiring the use of biodiesel blends in state fleet diesel vehicles, and presents some of the challenges and realities of utilizing this alternative energy source. Parameters for the study include the number of state fleet vehicles, their annual consumption of diesel fuel, state-owned storage capacity, statewide availability of biodiesel, and existing refineries (in-state) that are capable of producing biodiesel. Numerous scenarios were tested to analyze the impact the state fleet might have on Arkansas' biodiesel industry, with the results indicating minimal. In order to more effectively utilize this alternative fuel, target markets were identified through GIS modeling which take into account state fleet vehicle location, storage tank capacity and location, and the potential for Arkansas' soybean industry to support biodiesel production. Further research on feedstock supply, logistics, demand, and economics will be necessary to guide future legislation.

2 – 2:30pm
Public & Private Government
Geocoding & Routing Bulky Item Pick Ups

Author & Presenter: Kevin Pruett, GISP; City of Little Rock, Public Works

Bulky Item Pick Up is a service provided to the citizens of the City of Little Rock. It is an extra collection of items other than household garbage that is not allowed in the City provided garbage cart. Pick-Up Crew Foreman had been manually scheduling daily routes for the next day's pick-ups. We began to experiment using Arc Map to aid in scheduling these Pick Ups utilizing the Geocoding and mapping tools available. After some adjustments this process has become a standard operation for this task. We have also utilized GIS tools in an effort to restructure our daily garbage routes. After some time existing routes become strained in some areas because of growth or saturated with services because of population decline. Automating this process with GIS tools has made a dramatic impact on both the accuracy and staff resources utilized to complete the route re-distribution.

2:30 – 3pm
Public & Private Government
Garland County GIS

Author & Presenter: John Ball; City of Hot Springs / Garland County GIS

Garland County and the City of Hot Springs have combined efforts and share IS/GIS personnel and resources. This partnership has set the stage for mutual collaboration among County & City offices. County and personnel can easily share ideas and data. Data created and maintained by both entities is stored in a central database and accessible to all GIS users on the network. This allows projects to be jointly developed, maps to be created and then viewed by multiple people, and better GIS support for the Garland County personnel.

3:15 – 3:45pm
Public & Private Government
Applications of LiDAR in Local Government

Author & Presenter: Llana Hines; Sanborn Map Company

This presentation is an overview of the uses of light detection and ranging (LiDAR) technology, and how this unique data is being used across the country in a variety of applications. This presentation will highlight the different uses of LiDAR in local government.

3:45 – 4:15pm
Public & Private Government
Bathymetric Surveying of Conway Lake

Author & Presenter: Holly Harvey, GISP; Southwestern Energy Company

Our department provides water to mining companies so they can pump the water into their wells to frac for natural gas. Because of the volumes of water needed to frac a well, it is very important to know how much water we have in our water resources.

Using boats that carry a depth finder and GPS, we collected data onto an SD card and brought it into Arc Map. The 3D Analyst extension allowed us to do volumetrics and create a 3D visual of the pond. Ultimately, not only did we provide the bathymetric study, we had time to get sedimentation depth samples on the whole lake.

This presentation allows the audience to see how volumes can be derived by an inexpensive tool, and how data can be used in 3D Analyst and ArcScene to create video.

4:15 – 4:45pm
Public & Private Government
Geospatial Market Trends

Author & Presenter: Ashok Wadwani; Applied Field Data Systems Inc

Since past few years, there have been various mergers and acquisitions in the Geospatial market. This trend is continuing and will continue unless some regulations are in place. Another trend is a general cost cutting/cost sharing policy taking effect. Unless user community wakes up and complains, all the users are going to see increasing prices, lower service levels, less competition and less innovation.

The presentation will cover the important trends and some suggestions to turn this situation around.

Thursday – Ballroom IIIB

9 – 9:30am
Utilities
Empowering GIS to Manage Public Works, Utilities, and Permitting

Author & Presenter: Jeremy White; Azteca Systems

The presentation will illustrate the benefits having of a GIS-Centric work order management system in public works, and utilities. It will also highlight how a GIS-Centric system can help to track permits, planning in development activities, engineering processes, business or regulatory licenses, and code enforcement cases on properties.

The presentation addresses a city or county's need to leverage GIS to facilitate daily workflow within a department, or across many. It will address the ability for workers in the field to contribute to workflows that may be created in office.

9:30 – 10am
Utilities
GIS Helps Conway Corp. with City Council Approval

Author & Presenter: James Rains; Conway Corporation

In the spring of 2011, Conway Corporation sought conditional use and site location approval from the Conway City Council in regards to a new Wastewater Treatment Plant. Our GIS department was essential in providing key population data and maps for our Manager of Engineering to use during these meetings with the council.

10 – 10:30am
Utilities
Providing Water and Sewer Services to Two Cities in Two States: A History of GIS at Texarkana Water Utilities

Author & Presenter: David Latham; Texarkana Water Utilities

The Texarkana Water Utilities (TWU) is a water/wastewater utility that serves approximately 100,000 people and produces over 4 billion gallons of drinking water annually. TWU is owned by both Texarkana, TX and Texarkana, AR and serves a number of surrounding cities. TWU has been developing GIS since 1994 and is now the GIS hub for the Texarkana Area. Using ESRI technology, GIS development has been strong over the past 17 years at TWU, keeping up with technology changes and implementing industry recognized, "best practices" for continued GIS growth. The enterprise GIS now uses its data for water/sewer modeling, web map development, work order management, and is now an integral part of the two cities operations, asset management, and economic development. This presentation will discuss software, staffing requirements, field data collection using GPS, getting maps into the field, maps and apps, strategies for building support for the GIS program throughout Texarkana.

10:45 – 11:15am
Utilities
Connect Arkansas: Mapping Broadband Availability

Author & Presenter: Emerson Evans; Connect Arkansas

Established in 2007, Connect Arkansas is a private, nonprofit corporation that partners with key stakeholders throughout Arkansas to develop and implement a comprehensive plan for statewide broadband deployment. This partnership utilizes a community-by-community approach to facilitate demand, while collaborating closely with industry to ensure that all Arkansans understand the value and uses of broadband in a global economy. An important part of this statewide plan is the mapping and analysis of broadband availability in Arkansas. This presentation will include an overview of the Connect Arkansas mapping program with an emphasis on the statewide interactive broadband map and future plans involving data collect.

11:15 – 11:45am
Utilities
PLWC – Looking Behind, Looking Ahead

Author & Presenter: Lane Howerton; Paragould Light Water and Cable

The Next Generation: A GeoSpatial Voyage

This presentation will be a brief look in the past to where our utility maps and asset information came from and how it has transformed into the ubiquitous system it is today. The presentation will take attendees from CAD maps and hand written notes and sketches, touch lightly on the modeling and conversion process of the four utilities, and finish with a look at where we need to go in the future. We'll look at our use of ArcGIS Desktop and Server, and Telvent, formally Miner and Miner, ArcFM and how we have used them to transform our utility into one that can access information when and where needed.

1:30 – 2pm
Remote Sensing
Thermal Imagery: Potentials for Environmental Management on Military Lands

Author & Presenter: Scott Alsbrook; Arkansas Army National Guard

In the spring of 2011, the Arkansas National Guard obtained Thermal Imagery of the Camp Joseph T. Robinson in North Little Rock. This was a test case to determine what if any benefit could be deriving from the collection of thermal imagery on military installations. This presentation will cover sensor platform, collection methodology and potential uses of thermal imagery for environmental and facilities management.

2 – 2:30pm
Remote Sensing
Mapping Flood Extent on the Black River near Black Rock, Arkansas

Author & Presenter: Mark Cooper; University of Arkansas, CAST

This paper presents a method for fast, accurate mapping of flooding extent when stream gage data is available. Utilizing remote sensor data from Landsat Thematic Mapper 5 in conjunction with a digital elevation model, flood extents were mapped, allowing for analysis of affected land cover types. Landsat TM 5 bands 4 and 7 were both used in order to increase the accuracy of identifying wet/dry land, while stream gage height was used to identify elevations which would be under water in the DEM. Utilizing both the imagery and DEM was highly beneficial because it eliminates or reduces the negative issues associated with either type of data on its own.

2:30 – 3pm
Remote Sensing
Land-cover Mapping using GEOBIA and High Resolution Aerial Photography

Author & Presenter: Bruce Gorham; University of Arkansas, CAST

Arkansas is fortunate to have two dates of statewide digital imagery for the year 2006: ADOP (Arkansas Digital Ortho Program) and NAIP (National Agriculture Imagery Program) from the USDA. These photographs are used extensively by private and publics agencies for various applications such as natural resource and environmental management, urban planning, etc. These applications usually involve small-scale, manual classification procedures. ADOP and NAIP provide interesting possibilities for mapping land-use and land-cover features. Beginning in 2009, the Arkansas Land-use/Land-cover (LULC) project began developing automated processes for LULC classification from high-resolution images via Geo-Object-Based Image Analysis (GEOBIA). While aerial photography lacks the spectral resolution to extract land-use information using traditional pixel-based classification methods, GEOBIA techniques, which rely heavily on such image characteristics as texture, proximity, and shape, can be practical for LULC mapping from aerial imagery. This presentation covers GEOBIA methods for extracting land-use information from aerial imagery in an automated fashion.

3:15 – 3:45pm
Remote Sensing
A Long-Term Temporal Approach to Mapping Pine Plantations with GEOBIA in the Boston Mountain Ecoregion

Author & Presenter: Bruce Gorham; University of Arkansas, CAST

Distinguishing pine plantations from naturally regenerating pine stands is a painstaking process. Ground surveys require substantial investments in time and money. Remote sensing techniques employing one date of imagery can be used to map land-cover types (such as pine/not pine) at any given point in time, but pine plantations are a temporal phenomenon, and must be mapped both spatially and temporally. Landsat Thematic Mapper's (TM) data continuity extends back to 1984, therefore the timeframe for this study spans 25 years (1984 – 2009). Seven separate pine/not-pine maps were made at 3 to 4 year intervals. Image processing employed for this project included pixel-based methods for pre-processing and object-based procedures for classification. Finally, a rules-based, seven-case binary was created to assign pine stands into plantation and natural regeneration categories. Field work was conducted by CAST and ANHC staffers for the purpose of collecting a set of points and/or areas for accuracy assessment.

3:45 – 4:15pm
Remote Sensing
An Approach for Hydrological Enforcement of Low Relief Areas

Author & Presenter: Hayley Hames; University of Arkansas, CAST

The Bayou Meto watershed in South Central Arkansas is an area of low relief and has been heavily terraformed over the last several decades to develop drainage structures for agriculture purposes. It is thus characterized by a combination of unaltered flows through vegetated swampland, long and narrow channels, natural and manmade reservoirs, and complex levy systems. Multi-return LiDAR data was collected in 2008 and 2009 by the NRCS in order to produce high-resolution DEMs of the watershed. To support hydrological analysis these DEMs need to be hydrological enforced using manually digitized riparian boundaries. Although techniques exist for hydro-enforcement of LiDAR-derived DEMs, many do not work well in very flat areas or are very complex to implement. In this paper, we present an approach using tools developed in ArcGIS 10.0 using available geoprocessing tools in Python, to rigorously hydro-enforce very large areas (over 1000 square miles) and discuss the strengths and weaknesses of the implementation.

4:15 – 4:45pm
Remote Sensing
Water Use Permitting and Analysis within ANRC

Author & Presenter: Brian Culpepper, Danielle Grey; CAST and Ken Brazil; ANRC

The Arkansas Watershed Resource Information Management System (AWRIMS) is a geospatial decision support tool for Arkansas' wetland and watershed planning initiatives. The goal of the AWRIMS system is to automate and organize wetland impact and water use analysis techniques for Arkansas Natural Resources Commission staff. The prototype applications demonstrate various landscape scale assessment reports, which include wetland area impacts, wetland restoration projects, and collections of other available digital datasets that provide a measurement of cumulative watershed changes and impacts within Arkansas. Water permitting analytical capacities have been expanded so that new AWRIMS desktop GIS tools will provide ANRC staff and the public with the latest quantitative summation of Non-Riparian permitted water use within the Fayetteville Shale Play region. These tools assist with daily permitting operations and management of Arkansas water resource assessment within the ANRC offices and will be described during this presentation.

Friday – Suite I

8:30 – 9am
Framework
Using Census Data in your GIS

Author & Presenter: Craig Best; US Census Bureau - Kansas City Regional Census Center

Calendar year 2011 marks the beginning of the data releases from the 2010 Census. Census data are provided for literally millions of geographic areas across the United States including every state, county, city, township, census tract, block group, block, congressional district, state legislative district, and school district. In this session, we will show users how to quickly identify and use the geographic and demographic files required to map any level of geography that interests the user.

9 – 10am
Framework
Demonstration on the Use of Census Data - Highlighting Case Studies

Author & Presenter: Sunny Farmahan; UALR

The availability of Census data at different geographies enables us to create maps using Census data and do spatial analysis using ArcGIS. In this presentation you will learn about mapping and analyzing the 2010 Census data, as well as, all you the opportunity to obtain answers to any questions you may have on using Census data. and will demonstration will showcase some census mapping projects.

Friday – Suite II

9 – 9:30am
Public and Private Government
Update on GIS Coordination Efforts in the State of Arkansas

Author & Presenter: AGIO

9:30 – 10am
Software & Technology
How to use GeoStor 6.0

Author & Presenter: AGIO

GeoStor **http://www.geostor.arkansas.gov/G6/Home.html** is Arkansas' Official GIS Platform that provides access to geographic information system (GIS) applications, data, and web services in the state of Arkansas. This presentation will provide an overview of GeoStor, how to navigate the site, how to view data directly in the GeoStor viewer or how to search and download data for use in your own software. A demonstration of the advanced search feature will be provided along with an explanation of how to read and use results. Learn how to download data from the GeoStor FTP site and how to connect to GeoStor services in your ArcCatalog.

Friday – Suite III

8:30 – 9am
Software & Technology
"Parts Is Parts" – It's all about the Data! (Repeated Session)

Author & Presenter: Scott Lane; Arkansas Game & Fish Commission

While data comes in different types, it is all data regardless of its form. The ability to effectively and efficiently use it can be greatly improved through planning and design. Geodatabases are excellent tools for data storage and sharing. This presentation will explore some of the lessons learned by the Arkansas Game and Fish Commission in their migration from shapefiles to an enterprise geodatabase. After all … IT REALLY IS … all about the data!

9 – 9:30am
Software & Technology
Where's My File?! Simple tips for a better file structure. (Repeated Session)

Author & Presenter: Randy Puckett; ADEQ

At one time or another, we've all done the preverbal no-no with our work documents. You know what I'm talking about; you start a project and begin cramming .mxds, .pdfs, spreadsheets, shapefiles and everything else into folders that every other project you've ever done is crammed into as well. How easy is it to find your .mxd and all its associated project files a month later? A year later? Five years from now? Good luck, you'll need it.

How do you fix this? You get organized!

In this presentation, we will discuss some common problems that are perpetuated through the continued use of poor file structure. We will also discuss helpful ways to clean up "old messes," and to implement new protocols for a more organized file structure and a greater ease of use during the course of a project.

9:30 – 10am
Software & Technology
Powerful PowerPoint (Repeated Session)

Author & Presenter: Becky Allison and Katy Hattenbauer; ADEQ

"Would you please make a presentation?" If this request makes your blood run cold, you're not alone. But with commercial presentation programs, speakers can now easily create a visual background of text, graphics, sound and video. Since its development, PowerPoint has been used in classrooms, boardrooms and conferences. But these audiences know that we presenters can do better. During this session, Powerful PowerPoint, a veteran audience member of mediocre presentations will detail how to build a show that will make you a better speaker with a clearer message.

Poster Abstracts

Title	Author	Affiliation
1. Landscape Classification of Felsenthal National Wildlife Refuge	Aubert (Auddy) Doss	UAM
2. 10 Year Wilderness Stewardship Challenge	Jeremy Evans	USFS
3. Forest Activities Database – Tracking Changes in Vegetation and Wildlife Habitat Components	Brian Barns	USFS
4. Utilizing ArcPad and ArcPad Studio in Fire Management.	Chip Stokes	USFS
5. GIS Support on Fires through the Wildland Fire Decision Support System (WFDSS)	Tina Rotenbury	USFS
6. Utilizing Google Earth and a Common Operating Picture (COP) to Support Incident Management	Tammy Hocut	USFS
7. Bathymetric Surveying of Water Sources	Holly Harvey	SWEC
8. Opening the Blinds: Extracting GIS Information from Imagery	Robert C. Weih, Jr.	UAM
9. Progress of the Arkansas Mineral Commodity Database (AMCD)	Nathan Taylor	AGS
10. The Fayetteville Shale Gas Play, 2004-2010	Nathan Taylor	AGS
11. Simultaneous Mapping of Parcels and Address Points	John Ball	City of Hot Springs
12. Visualizing the State: One Quadrangle at a Time	Drew Moffitt	FTN Associates

Author: Aubert (Auddy) Doss
Affiliation: School of Forest Resources, University of Arkansas at Monitcello

Title: Landscape Classification of Felsenthal National Wildlife Refuge

Landscape classification of Felsenthal National Wildlife Refuge (FNWR) was developed under the umbrella project of Quail Habitat Modeling of FNWR. A forerunner to quail habitat modeling was establishing methods for developing FNWR's landcover type, structure, and density which was this project's major objective. Quail are extremely sensitive to landcover and heavily rely on it to provide food, escape, roosting, nesting, and brood rearing.

Earth Resource Data Analysis System (ERDAS) Imagine software was utilized for the supervised landcover classification as well as 2006 natural color and color infrared imagery. The FNWR upland area was segregated from the lowland area to yield a classification with greater detail and accuracy. Neighborhood processes in ArcMap were performed to generate the pine timber structure densities. By using ERDAS and ArcMap in conjunction, an overall accuracy assessment of 92% was achieved which exceeds normal accuracy expectations for ERDAS. The refuge's quail population is currently low, but with proper habitat management the population is expected to rebound.

Author: Jeremy Evans
Affiliation: USFS - Sylamore-St. Francis Ranger Districts

Title: 10 Year Wilderness Stewardship Challenge

The 10 year wilderness stewardship challenge is a plan for all wilderness areas in the United States to meet a minimum standard. GIS and GPS technology help accomplish goals of the 10 year wilderness stewardship challenge. By digitizing home sites and fields from old aerial imagery we are able to locate non-native invasive species(NNIS) and archeological sites. By using GPS we are able to locate and keep track of NNIS, archeological sites, trails, camp sites and other items important to the 10 Year Wilderness Stewardship Challenge.

The Next Generation: A GeoSpatial Voyage

Author: **Brian Barns**
Affiliation: **USFS - Ozark-St. Francis National Forests**

Title: **Forest Activities Database – Tracking Changes in Vegetation and Wildlife Habitat Components**

Tracking changes is important for evaluating the health of a community, its effects to wildlife populations, and in showing the progress toward the desired future conditions stated in the Forest Plan. Changes are monitored and a report is generated showing trends in the ecological communities as well as Forest Plan Management Areas. Examples of activities tracked and monitored include the abundance of forest regeneration, age class composition, and the proportion of communities burned at desired intervals and seasons.

Author: **Chip Stokes**
Affiliation: **USFS - Boston Mountain and Magazine Ranger Districts**

Title: **Utilizing ArcPad and ArcPad Studio in Fire Management.**

Custom input forms and feature collection routines built through ArcPad Studio and run on Trimble Junos provide needed navigation mapping and data collection for wildfires and prescribed fires.

Author: **Tina Rotenbury**
Affiliation: **USFS - Ozark-St. Francis National Forests**

Title: **GIS Support on Fires through the Wildland Fire Decision Support System (WFDSS)**

The WFDSS system assists managers and analysts in making strategic and tactical decisions for fire incidents. Over the past 30 years, fires have dramatically increased in size and complexity, often stretching the capacity of the management systems in place. The WFDSS project evolved from the need to streamline and improve the decision-making processes, as well as take advantage of improvements in technology, fire modeling, and geospatial analysis. The fine tuned fire spread models within the WFDSS system can now be exported to a GIS platform and utilized to look at situations like how many structures will need to be protected per rate of fire spread over time.

Author: **Tammy Hocut**
Affiliation: **USFS - Ozark-St. Francis National Forests**

Title: **Utilizing Google Earth and a Common Operating Picture (COP) to Support Incident Management**

Utilizing Google Maps and Google Earth through a Common Operating Picture in Keyhole Markup Language (KML) format to provide operational tools that allow better situational awareness and communication when dealing with emergency response and management on wildfires.

Author: **Holly Harvey, GISP**
Affiliation: **Southwestern Energy Corporation**

Title: **Bathymetric Surveying of Water Sources**

Our department provides water to mining companies so they can pump the water into their wells to frac for natural gas. Because of the volumes of water needed to frac a well, it is very important to know how much water we have in our water resources. Using boats that carry a depth finder and GPS, we collected data onto an SD card and brought it into Arc Map. The 3D Analyst extension allowed us to do volumetrics and create a 3D visual of the pond. Ultimately, not only did we provide the bathymetric study, we had time to get sedimentation depth samples on the whole lake.

Author: **Robert C. Weih, Jr.**
Affiliation: **Spatial Analysis Laboratory (SAL), University of Arkansas at Monticello**

Title: **Opening the Blinds: Extracting GIS Information from Imagery**

Remotely sensed imagery, in the form of satellite and aerial photography, has become an indispensable tool in resource management and in numerous areas of scientific research. The challenge is to extract the information locked in the pixels to obtain the full benefit of the imagery. Even though imagery provides valuable information in its raw form, imagery can provide much more information after processing. This map demonstrates how more information can be extracted from imagery of Hot Springs National Park in Arkansas. The multi-resolution image was created from combining SPOT imagery with high-resolution digital aerial

imagery and the Land Use/Land Cover (LULC) classification was created with Feature Analyst and ArcGIS.

Land-use/Land-cover classification maps are used extensively in conservation planning, informing land development decisions in metropolitan areas, planning and implementing large-scale inventories of natural resources, and monitoring change in ecosystem/landscape condition over time. This is just one method of opening the blinds and extracting GIS information from imagery.

Author: **Nathan Taylor**
Affiliation: **Arkansas Geological Survey**

Title: **Progress of the Arkansas Mineral Commodity Database (AMCD) and End-User Utilization Through Microsoft™ and GIS Technology**

Begun in 2001, the AMCD has been built in an MS Excel® spreadsheet and as of March 2011, contains 7684 entries. This poster displays the field progress of checking counties since 2005 (See AMCD Field Work Progress map insert on Fig. 6). Site examination is done by both normal field visits and by using Google Earth® imagery. Of 75 counties in Arkansas, 64 have been completed. An end date for the project is projected to be the summer of 2013, based on current field activities. This data set excludes oil and natural gas. As of 2010, the data from the AMCD has been re-formatted and incorporated into an agency MS SQL Server Express 2008® database. In this format, it is possible to program maintenance and query applications using VB.net, construct XML files for use with Google Maps®, and to directly connect to the data using ESRI's ArcMap® 10.

Author: **Nathan Taylor**
Affiliation: **Arkansas Geological Survey**

Title: **The Fayetteville Shale Gas Play, 2004-2010**

Summary of the first six years of shale-gas exploration development within the eastern Arkoma Basin of Arkansas.

Author: **John Ball**
Affiliation: **City of Hot Springs / Garland County GIS**

Title: **Simultaneous Mapping of Parcels and Address Points**

This poster outlines the process used to map parcel boundaries and address point locations at the same time. This process is being used in Garland County because the parcel boundaries are the main priority right now. However, address points can still be mapped to while adding only a small amount of time to the parcel mapping process.

Author: **Drew Moffitt**
Affiliation: **FTN Associates, Little Rock**

Title: **Visualizing the State: One Quadrangle at a Time**

As GIS professionals, we are often tasked to map the world on a smaller and smaller scale.

With so much detail, it can become quite impossible to visualize the bigger picture of the things and themes around us. Mapping at the USGS Quadrangle boundary scale allows everything from roads and population, to tornadoes and rainfall to begin to look much more interesting. Patterns in the data emerge that were not so apparent moments earlier. The data becomes understandable.

Participants

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2011 SYMPOSIUM SCHEDULE AT A GLANCE
Wednesday, August 31, 2011

Day ONE	Ballroom IA	Ballroom IB	Ballroom II	Ballroom IIIA	Ballroom IIIB	Suite I	Suite II	Suite III
1:30	**ESRI** - 2011 International Users Conference Overview - Learn More about Topics Discussed at This Year's Conference							
3:00 BREAK								
3:15	**ESRI** - A Glimpse of the Near Future - a More Detailed Look into Products and Functionality that ESRI is Bringing Our Way (Includes Question and Answer Period)					**ST** - High-Speed Viewshed Computation for Web Mapping Applications	**ST** - "Parts Is Parts"It's all about the Data! (Session repeated Friday 8:30am)	**GOV**- Benton County Sex Offender Mapping Program
3:45						**ST** - The Arkansas State-Wide K12 ESRI License - a Unique Opportunity for Our Kids	**ST** - Where's My File?! Simple Tips for a Better File Structure (Session repeated Friday 9am)	**GOV**- GIS for Preparedness, Response and Mitigation for Disasters
4:15						**GOV**- Using GIS Technologies for Assessment Adjustments	**ST** - Powerful PowerPoint ADEQ (Session repeated Friday 9:30am)	**GOV**- Benton County Health Department Food Inspection Website
6-9 Vendor Reception								

2011 SYMPOSIUM SCHEDULE AT A GLANCE
Friday, September 2, 2011

Friday	Ballroom	Suite I	Suite II	Suite III
8:30		**FW** - Using Census Data in your GIS	**GOV** - Update on the State's GIS Coordination Efforts	**ST** - "Parts Is Parts" - It's all about the Data!
9:00		**FW** - Demonstration on the Use of Census Data Highlighting Case Studies	**ST** - How to Use GeoStor 6.0	**ST** - Where's My File?! Simple Tips for a Better File Structure
9:30				**ST** - Powerful PowerPoint
10:00 BREAK To Check Out				

YOUR OPINION COUNTS!

Please visit our web site after the conference and complete the survey monkey to let us know what you liked OR didn't like about the conference.

Thanks for making the 2011 AR GIS Users Forum Symposium & Training a HUGE Success!!!

AR GIS Users Forum Executive Committee

www.argisusers.org

Welcome to Northwest Arkansas
and the 11th Biennial Symposium and Training brought to you by your hard working Executive Committee of the Arkansas GIS Users Forum

We have assembled many great presentations for you this year (nearly 50% more than in 2009) and hope that you find these tear-out schedules helpful in picking out the sessions that you would like to attend

Be sure to take advantage of the

Vendor Social Wednesday starting at 6pm

to meet and greet with some of the great folks that have helped support this meeting!

ARKANSAS GIS USERS FORUM
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Save the date!

2013 AR GIS Symposium & Training

September 9 -13, 2013

Best Western Inn of the Ozarks,
Eureka Springs, AR
www.argisusers.org

2011 SYMPOSIUM SCHEDULE AT A GLANCE
Thursday, September 1, 2011

Thursday	Ballroom IA	Ballroom IB	Ballroom II	Ballroom IIIA	Ballroom IIIB
9:00	**ST** - Creating a Statistical Exploratory Data Analysis Tool using Javascript AP	**SCI** - Indiana Bat Habitat Restoration Project - Syalmore Ranger District	**ST** - Disseminating GIS Data for General Public using Google Earth	**PH&S** - Updating City Limits and Utilizing the LRS Virtual Location Tool at the AHTD	**UT** - Empowering GIS to Manage Public Works, Utilities, and Permitting
9:30	**ST** - GIS and Floodplain Management	**SCI** - Forest Activities Database - Tracking Changes in Vegetation and Wildlife Habitat Components	**ST** - Utilizing the Google Maps API for interactive web-based mapping applications	**PH&S** - Benefits of GIS in Search and Rescue	**UT** - GIS Helps Conway Corp. with City Council Approval
10:00	**PH&S** - Northwest Arkansas Red Cross Emergency Resource Mapping Project	**SCI** - Integrating Geospatial and Sensor Technologies for Helping AR Farmers	**ST** - SQL Spatial: Using the Power of SQL with GIS	**PH&S** - Emergency Response: The Aerial Imagery Approach	**UT** - Providing Water and Sewer Services to Two Cities in Two States
10:30 BREAK					
10:45	**ST** - Integrated National Resource Inventories using Trimble Juno and ESRI ArcPad	**SCI** - Use of Geographic Information Systems to Develop Surface-Water Models	**ST** - ArcGIS Server: No Really, It's Just Software	**PH&S** - GIS Support on Fires through the Wildland Fire Decision Support System (WFDSS)	**UT** - Connect Arkansas: Mapping Broadband Availability
11:15	**ST** - Forest Monitoring with Imagery Analysis and GPS	**SCI** - Hydrofracking - Waste Disposal Could Induce/Trigger Potentially Damaging Earthquakes	**ST** - Building Web Mapping Applications Using ArcGIS Server	**PH&S** - Utilizing a Geospatial Viewing Platform as an Incident Management Planning and Operational Tool	**UT** - PLWC - Looking Behind, Looking Ahead
11:45 LUNCH w/ Vendors 11:45am - 1:30pm					
1:30	**FW** - NHD: Stewardship Progress in AR	**SCI** - Mapping of AR Historic Wetland Forests using DeClassified Imagery	**RS** - LiDAR Specifications and Flight Planning	**GOV** - Analyzing the Impact of State Fleet Vehicles on AR Biodiesel Industry	**RS** - Thermal Imagery: Potentials for Environmental Management on Military Lands
2:00	**FW** - Creating Local Resolution NHD with LiDAR data	**SCI** - The Role of GIS in Cultural Resource Management and Archeology	**RS** - LiDAR Data Post-Processing and Formats	**GOV** - Geocoding & Routing Bulky Item Pick Ups	**RS** - Mapping Flood Extent on the Black River near Black Rock, AR
2:30	**FW** - Implementation of the USGS StreamStats Program in Arkansas	**SCI** - St. Louis, Missouri: Then and Now	**RS** - ArcMap Tool for Comparing DEMs with Differing Resolutions	**GOV** - Garland County GIS	**RS** - Land-Cover Mapping using GEOBIA and High Resolution Aerials
3:00 BREAK					
3:15	**FW** - Locating People, Places & Events Using an Address	**SCI** - Arkansas Resource Assessment Project	**SCI** - Battle of Prairie Grove: An Interactive Experience of a Historic Battlefield Landscape	**GOV** - Applications of LiDAR in Local Government	**RS** - A Long-Term Temporal Approach to Mapping Pine Plantations
3:45	**FW** - Use of LiDAR in Two-Dimensional Finite Element Modeling Simulations	**SCI** - Technologies for Developing Projects to Reduce Environmental Impacts on Stream Banks	**SCI** - In Search of the Little Rock, Maumelle & Western Rail Road	**GOV** - Bathymetric Surveying of Conway Lake	**RS** - An Approach for Hydrological Enforcement of Low Relief Areas
4:15	**FW** - The National Map Viewer Base Map and Services	**ST** - Decimeter Accuracy, Trimble Productivity in Handheld Convenience	**SCI** - Comparison of NEXRAD and Rain Gauge Precipitation Estimates in an AR Watershed	**GOV** - Geospaital Market Trends	**GOV** - Water Use Permitting and Analysis within ANRC
EVENING ACTIVITY Buses begin departing at 5:00 for Horton Farms					

The Arkansas GIS Users Forum invites you to an evening full of Fun, Food and Live Music

Buses begin departing for Horton Farms at 5pm, Thursday Evening. They will be running every 30 minutes to take you out there and bring you back at your convenience. This location offers an amazing escape into the beautiful Ozark mountains while providing an elegant atmosphere for socializing and unwinding from a long day at the conference. We hope to see you there!

Live Music with:

The Wranglers

The Wranglers are one of Northwest Arkansas' hottest country, party bands. They are dedicated to the dancers - from two step to waltz and line dance to free style. While staying true to the traditional honky tonk country that we all know and love, The Wranglers will include varieties of Top 40 Country, Red Dirt, Southern Rock, and Blues.

catering by: WHOLE HOG CAFE

World Champion BBQ

Always a Forum Favorite!