Arkansas GIS Users Forum
Twelfth Biennial Symposium and Training

The State of GIS

September 9-13, 2013
Embassy Suites and Convention Center
Rogers, Arkansas

FORUM OFFICERS

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Vice Chair: Indepreet Singh "Sunny" Farmahan, *University of Arkansas at Little Rock*

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Tina Rotenbury, *United States Forest Service*

Bill Sneed, *United States Geological Survey*

Deano Traywick, *University of Arkansas at Little Rock*

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
Amy Whitehead	University of Central Arkansas	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
Heather Stevens	Stone County	Local Government
Kasey Summerville	Clark County	Local Government
Jon Sweeney	Arkansas Natural Resources Commission	State Government
Bekki White	Arkansas Geological Survey	State Government
Taylor Wynn	Carroll Electric Cooperative	Private Sector

CONFERENCE AT A GLANCE

2013 Arkansas GIS Users Forum Training and Symposium – THE STATE OF GIS

Conference Agenda

Monday

| 10:00 - 5:00 | *Workshop and Symposium Registration* |
| 1:00 - 5:00 | *Preconference Workshops* |

Tuesday

7:00 - 5:00	*Workshop and Symposium Registration*
8:00 - 12:00	*Preconference Workshops*
10:00 - 12:00	*AR GIS Board Meeting*
12:00 - 1:00	*Lunch (on your own)*
1:00 - 5:00	*Preconference Workshops*
1:00	*Golf Tournament*
7:00 - 9:00	*Free Evening Workshops*

Wednesday

8:00 - 10:00	*Symposium Registration*
9:00	*Vendor Expo Opens*
10:00 - 10:15	*Welcome*
10:15 - 11:00	*Welcome to Rogers (Glenn Jones, Commissioner Benton County Historical Preservation Commission)*
11:00 - 11:30	*Awards Presentation*
11:30 - 11:45	*Break with Vendors*
11:45 - 1:30	*Luncheon / Keynote Address (Don Cooke, Product Manger ESRI Community Maps Program)*
1:30 - 3:00	*Concurrent Sessions*
3:00 - 3:15	*Break with Vendors*
3:15 - 4:45	*Concurrent Sessions*
6:00 - 8:00	*Vendor Reception (Pinnacle Ballroom)*

Thursday
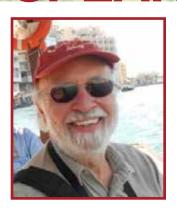
6:15	*5K Walk/Run*
9:00 - 10:30	*Concurrent Sessions*
10:30 - 10:45	*Break with Vendors*
10:45 - 11:45	*Concurrent Sessions*
11:45 - 12:45	*Lunch with Vendors*
12:45 - 1:30	*Forum Meeting and Officer Elections*
1:30 - 3:00	*Concurrent Sessions*
3:00 - 3:15	*Break with Vendors*
3:15 - 4:45	*Concurrent Sessions*
6:00 Close	*Game Night (Ambassador Ballroom 8-10)*

Friday

8:30 - 10:00	*Concurrent Sessions*
10:00 - 10:30	*Break / Checkout*
10:30 - 10:45	*Guest Speaker (Terry Eastin, Mississippi River Trail project)*
10:45 - 11:25	*Closing Speaker (Dr. Joseph K. Berry)*
11:25 - 12:00	*Closing Remarks and Prize Giveaway*

SPEAKERS

Don Cooke – Keynote Speaker

Don has been with Esri since October 2010 with the Sales department as Community Maps Evangelist, and has recently been appointed Product Manager for the Program. This new position within the Product Management Division shows Esri's commitment to the Community Maps Program and was added to respond to the rapid expanse of the program over the last few years.

Glenn Jones

Glenn Jones is a Retired Petroleum Engineer. An alumni of the University of Oklahoma, Glenn began his 42 year career with Cities Service Oil Company and retired in 2002 from Occidental Petroleum Company in Tulsa, OK.

He currently serves as commissioner, Benton County Historic Preservation Commission; Board Member, National Trail of Tears Association; vice-president of the Arkansas Chapter Trail of Tears and is an active member in all nine Trail of Tears chapters. He also serves as treasurer and board member for Heritage Trail Partners, Inc.

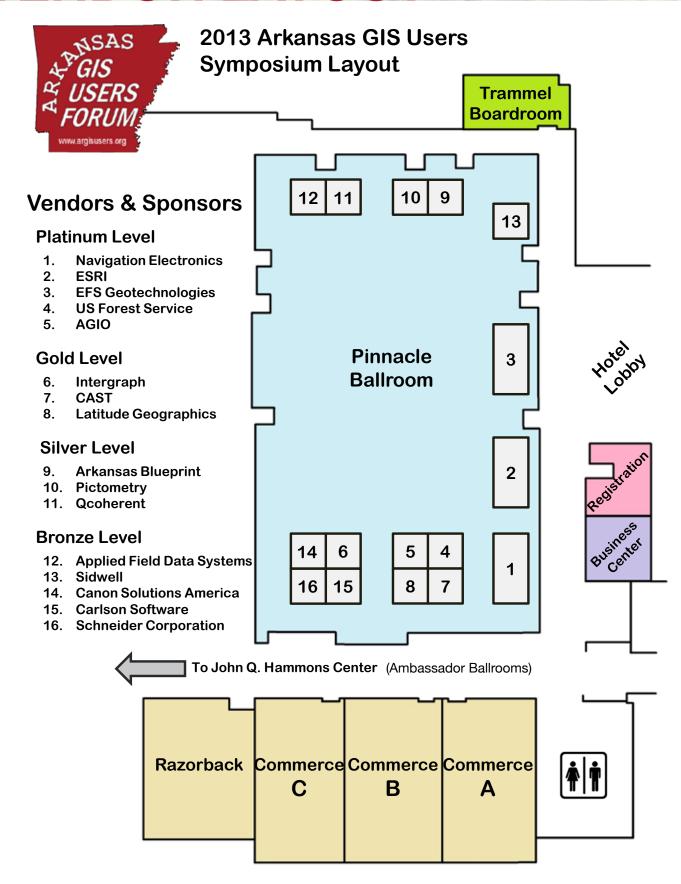**Terry Eastin, B.S.P.A., University of Arkansas**

As co-owner of Eastin Outdoors, Inc. Terry has worked tirelessly to bring attention to the conservation, health, and economic benefits of trails. She is the recipient of the coveted Kodak American Greenways Award presented by National Geographic Society, Eastman-Kodak, and the Conservation Fund (2007) for her work on the Mississippi River Trail. Terry has raised over $4,000,000 in grant funding for community trail development including helping establish Arkansas' first Watchable Wildlife Trail Grant program.

Dr. Joseph K. Berry

Dr. Joseph K. Berry is the Principal of Berry & Associates // Spatial Information Systems (BASIS), consultants and software developers in Geographic Information Systems (GIS) technology. He is a contributing editor and author of the Beyond Mapping column for GeoWorld magazine and has written over two hundred papers on the analytic capabilities of GIS technology. He is the author of the popular books Map Analysis, Beyond Mapping, Spatial Reasoning,Analyzing Precision Ag Data, Analyzing Geo-Business Data, Analyzing Geo-Spatial Resource Data, The Precision Farming Primer (online) and Beyond Mapping III (online). He serves as the Keck Scholar in Geosciences at the University of Denver and an Adjunct Faculty member in Natural Resources at Colorado State University.

VENDOR LAYOUT

2013 Arkansas GIS Users Symposium Layout

ARKANSAS GIS USERS FORUM
www.argisusers.org

Trammel Boardroom

Vendors & Sponsors

Platinum Level

1. Navigation Electronics
2. ESRI
3. EFS Geotechnologies
4. US Forest Service
5. AGIO

Gold Level

6. Intergraph
7. CAST
8. Latitude Geographics

Silver Level

9. Arkansas Blueprint
10. Pictometry
11. Qcoherent

Bronze Level

12. Applied Field Data Systems
13. Sidwell
14. Canon Solutions America
15. Carlson Software
16. Schneider Corporation

Pinnacle Ballroom

12 | 11   10 | 9

13

3

2

14 | 6   5 | 4
16 | 15   8 | 7

1

Hotel Lobby

Registration

Business Center

To John Q. Hammons Center (Ambassador Ballrooms)

Razorback | Commerce C | Commerce B | Commerce A

A LETTER FROM THE CHAIR

Welcome

    to "Arkansas: the State of GIS" and the Twelfth Biannual Arkansas GIS Users Symposium and Training. Our Forum has been supporting the GIS professionals of Arkansas for 23 years and it is you that have made our state a leader in the field of Geographic Information Systems.

    The Executive Committee has worked hard to bring you an exciting line-up of workshops, speakers and presentations to expand upon your expertise, share the innovative work of our colleagues, and promote collaboration across our entire GIS community. It is that collaboration that has always been the cornerstone of the success of the GIS field in Arkansas.

    And let's not forget to have a little fun while we're all together! We have planned a full agenda with ample opportunity for networking with our sponsors and attendees. Thank you for joining us for the 2013 Arkansas GIS Users Forum Symposium and Training and thank you for making Arkansas the State of GIS!

Scott Alsbrook
Chair, Arkansas GIS Users Forum

WEDNESDAY

	Commerce Ballroom A	Commerce Ballroom B	Commerce Ballroom C	Razorback
	Luncheon after key note - Break until 1:30 pm			
1:30	T - Where's My File?! Simple Tips for a Better File Structure	D - ArcPy -- Rising Above Model Builder	CS - CAMP - Creative Procurement Nightmares Can Lead to Sweet Dreams with Big Rewards	CS - Can't See the GIS for the Clouds
2:15	T - If You Don't Have Time To Do It Right, When Will You Have Time To Do It Over?	T - Bridging GIS and 3D Animation through Python	CS - US National Grid	T - Using the Power of Google Analytics to Improve your Visitor's Viewing Experience
3:00	Break			
3:15	CS - Caving in the Ozarks	T - Using Python to collect Geo-Tagged Tweets with Twitter Streaming API	D - Developing Custom GIS Tools with ArcGIS ModelBuilder	CS - ArcGIS Online Best Practices
4:00	CS - Search and Rescue in Northwest Arkansas	CS - The Use of GIS and Python in Groundwater Flow Model Development, Calibration and Results	D - Intro to GDAL and OGR - Open Source Libraries	OPEN SESSION
	Vendor Reception 6:00-8:00			

T   Technical   **D**   Demonstration   **CS**   Case Study

CONCURRENT SESSION SCHEDULE

THURSDAY

	Commerce Ballroom A	Commerce Ballroom B	Commerce Ballroom C	Razorback
9:00	CS - GIS and Billion Dollar Babies in Arkansas	CS - Multi-date Land-Cover Mapping with NAIP Imagery: Arkansas 2006-2010	CS - Inter-What? Getting Re-acquainted with Intergraph: Past, Present and Future Capabilities in Geospatial Technology	CS - Advancing Geospatial Education in the State of Arkansas
9:45	T - Creative GIS Solutions for Local Government	CS - Gap Identification and Damage Classification of Deciduous Vegetation by 2009 Ice Storm Process and Workflow	CS - State-Level Resource Planning Using Raster Analysis	CS - The Life and Times of the GISP Certification & It's Place in a Forward-Moving Geospatial Career
10:30	*Break*			
10:45	CS - GIS for Economic Development: Helping Businesses and Communities Grow	CS - The Ever-Evolving World of Aerial Imagery - Oblique Style	T - New Cost Effective Method of Mobile Data Gathering	CS - NAPSG (National Alliance for Public Safety GIS) Foundation
11:15	T - GeoStor	CS - High Resolution Urban Land-Use/Impervious Surface Mapping: Milwaukee, Wisconsin	CS - Community Crowdsourcing: Using public interaction to maintain community infrastructure	T - Exploring the Network Analyst Toolbar - Getting the most from your street network investment
11:45	*Lunch with Vendors 11:45 - 1:30*			
1:30	CS - Exploiting Real-Time Data with ArcGIS GeoEvent Processor for Server	CS - Time Travel: Mapping Dinosaur Trackways in Arkansas	CS - All the Cool Kids are Doing It - Mobile Maps	CS - Transportation Analysis Process - Using Geoprocessing and ArcGIS Model Builder to Evaluate a Road Network for Sustainability
2:15	T - Moving Web Apps from Flex/Flash to JavaScript/HTML5	CS - NHD and LiDAR, a Case Study in Florence County, South Carolina	T - Intro to ArcPad Studio	T - Creating the All Public Roads Linear Referencing System (LRS) - With your help!
3:00	*Break*			
3:15	T - A Crash Course: From ArcIMS to Flex	CS - NHD: What's New with NHD in AR	D - Trimble TerraFlex - Geospatial Data Collection and Management	CS - GIS as a Decision Support Tool for Pavement Management in AHTD
3:45	CS - GIS as a Decision Support Tool for Pavement Management in AHTD	CS - Use of GIS in Flood Inundation Mapping by the USGS Arkansas Water Science Center	CS - New Cool Toy for GIS Mapping	CS - Impacting Local Government - Updating Functional Classification using GIS
4:15		CS - LiDAR the 3rd Dimension in Arkansas	Lightening Talks	T - Roadway Safety in Arkansas - Toward Zero Deaths
6:00	*Evening Activity*			

T Technical   **D** Demonstration   **CS** Case Study

CONCURRENT SESSION SCHEDULE

	Commerce Ballroom A	Commerce Ballroom B	Commerce Ballroom C	Razorback
8:30	CS - Understanding and Using Census Data for Analysis and Mapping	CS - What did you miss at the ESRI User Conference, aka What's New with ArcGIS	CS - GIS at War: Application of GIS in Modern Warfare	D - Pulaski County Aerial Surveillance with a Remote GPS Guided Helicopter
9:15	CS - School District Boundaries?		CS - Arkansas Master Address Program (AMAP): Where have we come from? Development and Maintenance Issues	
10:00	Break --- To Checkout			

T   Technical   **D**   Demonstration   **CS**   Case Study

Don't forget it is almost

GISday

Discovering the World Through GIS | November 20, 2013

GIS Day Registration Now Open

This year GIS Day will be celebrated on Wednesday, November 20, and we want you to be part of the celebration. Host a GIS Day event for your co-workers, at a local school, or for your community. This is your opportunity to demonstrate how you use GIS in your daily work, and how this powerful technology plays a role in making our world a better place!

To receive free giveaways to hand out during a GIS Day event, the event information must be registered by September 20.

http://www.gisday.com/

And don't forget to support your local Regional GIS User Groups in NW Arkansas, River Valley and NE Arkansas. See an Executive Board Member for more information if you are interested in joining.

PRE CONFERENCE WORKSHOPS

The Arkansas GIS User's Forum Officers and Executive Committee would like to say a special Thank You to Dell for bringing 65 computers to use for our workshops!

Thank you Dell for helping to make the 2013 Symposium a success!

PRE CONFERENCE WORKSHOPS

Were you able to take advantage of our Workshop and Training Sessions this Symposium?

We would like to send a BIG THANK YOU to all of the instructors that donated their time and effort to put on some GREAT Workshops! Here is what was offered this year…

Monday

ESRI Geodatabases by Richie Pierce and Matt Charton from a.c.t.GeoSpatial, Inc.
GIS for the Masses - Enabling Geospatial Enterprise by Joe Bob Penor from Intergraph Corporation
Census (American Community Survey) by Inderpreet (Sunny) Farmahan from UALR
Using the Power of Google Analytics and Google Maps by Mike Jezierski from Arkansas Game & Fish
Intermediate Geoprocesssing with Python by Chad Cooper from CAST
How to use GeoStor by Shelby Johnson from AGIO
The Integration of Visualization Strategies in Innovative and Effective GIS Map Design by Dr. Tom Paradise from the UofA
Breakline Creation and Enforcement Using the LIDAR Point Cloud by Nancy Graham & Andrew Walker from Qcoherent
Developing Custom GIS Tools with ArcGIS ModelBuilder by Adam Barnes from CAST

Tuesday

eCognition – High Resolution Object-Based Image Analysis and PCI Plugin for ArcGIS by Bruce Gorham from CAST
ArcMobile – GIS Data Collection Using ArcGIS Mobile with Trimble Positions by Eric Bock from Trimble
ArcGIS Server by Russell Gibson & Jeff Fears from the City of Fort Smith
Basic GIS 10.1 (Hands On) by CAST & ESRI
LiDAR Data Processing by Malcolm Williamson & Hayley Hames from CAST
Intro to GeoMedia 2013 by Joe Bob Penor from Intergraph Corporation
ArcGIS Online by Tim Hensley & Dan Haag from ESRI
Getting a Grasp on the Nebulous GIS "Cloud" by Matt Charton & Richie Pierce from a.c.t.GeoSpatial, Inc.
Mobile Maps – All the Cool Kids are Doing It! by Scott Lane from Arkansas Game & Fish
AGIO: A GIS Workflow for Physical Addressing and E9-1-1 Data Maintenance Personnel by Adrian Clark from AGIO
Storm Spotting by Ed Calianese from the National Weather Service out of Tulsa

SESSION ABSTRACTS

1:30 – 2:15p

<u>Where's My File?! Simple tips for a better file structure</u>
Technical Presentation
Presented by: Randy Puckett, Arkansas Department of Environmental Quality

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 are crammed into as well. How easy is it to find your .mxd and all its associated project files a month later? A year? 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 greater ease of use during the course of a project.

2:15 – 3:00p

<u>If you don't have time to do it right, when will you have time to do it over?</u>
Technical Presentation
Presented by: James Rains, Conway Corporation

With an aging system and retiring employees, new construction vs. rehab and maintenance, and migration from paper to digital - information is key to keeping a system accurate and functional for whatever needs may come. Whether it is adding an install date to a pipe in the ground or linking a job folder based on a Work Order ID, the right information is out there. It could be through the knowledge of a tenured employee, searching for files in a cabinet or scanned onto the network, even open communication with those actively performing maintenance. The sooner you can get it, the more prepared you will be.

3:15 – 4:00p

<u>Caving in the Ozarks</u>
Case Study
Presented by: Inderpreet Singh Farmahan (Sunny), U of A – Little Rock

Ozarks region has hundreds caves formed in the limestone and dolomite rocks that makes up most of the Ozarks mountain ranges. These caves were created over thousands of years into beautiful formations like stalactites, stalagmites, columns and drapes. There is very interesting wildlife in the caves like bats, salamanders, fish, crayfish, and other arthropods. Exploration teams go inside the caves to survey and map the insides of the caves. The presentation will focus on the process of finding, exploring and surveying these caves.

4:00 – 4:45p

<u>Search and Rescue in Northwest Arkansas</u>
Case Study
Presented by: Mark Morales, USFS

A discussion of Interagency Search and Rescue (SAR) efforts . The focus will be on the Big Piney Ranger District, and the newly formed Tri-County SAR group of Madison, Carroll, and Newton counties in Arkansas. Agencies involved in the group are the County Sheriffs, Carroll County Mennonite Disaster Services, Arkansas Forestry Commission, and the U.S. Forest Service.

SESSION ABSTRACTS

1:30 – 2:15p

ArcPy -- Rising Above Model Builder
Demonstration
Presented by: Jason Tipton, Arkansas Geological Survey

ArcPy is one of the best features of ArcGIS. It is easy to script any process, and there's no reason not to know it. Model builder is a nice way to make a quick script, but sometimes it fails you. Also, the more complicated a process becomes, the harder it is to build in model builder. This session will show you how to get started with ArcPy and how to find help on arcpy syntax. We will go over some sample scripts and show how powerful arcpy can be. Topics will include selections, cursors, MapDocument tweaks, all along with ArcGIS geoprocessing tools and python functions.

2:15 – 3:00p

Bridging GIS and 3D Animation Through Python
Technical Presentation
Presented by: Chad Cooper, Center for Advanced Spatial Technologies

Python is currently becoming deeply embedded in both GIS and 3D animation and modeling packages. In the GIS realm, Python is becoming the de facto standard language for automation and data processing in both the commercial and open-source arenas. In the 3D animation and modeling industry, the same holds true; Python is emerging as the language of choice for APIs to allow developers to automate repetitive tasks and extend the core functionality of software packages. So what do you do when you have a project where your GIS package needs to communicate with your 3D package? You use Python, of course. These packages all have Python support, so getting them to talk should be easy, right? Not so much. This talk will be a highly technical, deep-dive case study on how we used Python to convince ArcGIS 10.0 and Vue Infinite 10.5 to be friends.

3:15 – 4:00p

Using Python to collect Geo-Tagged Tweets with Twitter Streaming API
Technical Presentation
Presented by: Edward Briggler, SAIC

Twitter, as well as other social media sites, offer ways of collecting gee-spatial data. The volume of data that's available is incredible and to be able to use spatial bounds on an area of interest (AOI) provides a means of honing in on a geographic location that is of interest. I use pycurl, tweetstream, and MySQLDb to create my own Python class for collecting tweets and storing them in a MySQL database to display on a map, or for further analysis. This talk will focus on the Twitter Streaming API, using Python, database usage, as well as some of the road blocks of using free data. Tapping into the social media realm of data can provide insight into AOI and be used to analyze vast amounts of data from users around the world.

SESSION ABSTRACTS

4:00 – 4:45p

The Use of GIS and Python in Groundwater Flow Model Development, Calibration, and Results
Case Study
Presented by: Brian R. Clark, US Geological Survey

The world-wide dominant numerical groundwater modeling program is MODFLOW, the U.S. Geological Survey modular finite-difference code. While many actively developed commercial and non-commercial graphical user interfaces exist for MODFLOW, a Geographic Information System (GIS) coupled with the Python scripting language can be one of the most useful, robust interfaces available for the development, calibration, and processing of results from groundwater flow models. Three case studies will be evaluated ranging from the development of a 78,000 square mile model of the Mississippi embayment, to a 3,000 square mile model of western Texas, to a 60,000 square mile model of the Ozark aquifer system. Each study will present a different aspect of the use of GIS and Python to format, modify, and visualize the necessary steps required for a groundwater flow model. Additional visualization techniques will be presented to demonstrate the analysis of time-series information resulting from the model simulations.

Wednesday – Commerce Ballroom C

1:30 – 2:15p

CAMP – Creative Procurement Nightmares Can Lead to Sweet Dreams with Big Rewards Case Study on the Arkansas Parcel Mapping Project
Case Study
Presented by: Shelby Johnson, Arkansas Geographic Information Office

In 2009 the Arkansas Geographic Information Office was awarded a small grant from the Federal Geographic Data Committee to complete a state business plan. A major recommendation of the plan was to complete a statewide tax parcel database using a matching concept. Under this scheme, state and local funding would be pooled to purchase outside services to do the tax parcel conversion process. Four years later the AGIO and participating counties are midway through the process outlined in the plan. This talk will cover the multi-year effort; it will feature back ground on the procurement process, the steps to achieve state and local funding, the contract mechanism, financial accounting, and other moving parts. Intergovernmental purchasing is a challenge but the results of this project will lead to big rewards in the future.

2:15 – 3:00p

US National Grid
Case Study
Presented by: Peter O'Rourke, NAPSG Foundation

Peter will describe the recently developed NAPSG Foundation's Implementation Guide to US National Grid. The Guide was developed by local and state public safety officials, and is intended as a non-technical guide for bringing USNG into your agency.

SESSION ABSTRACTS

3:15 – 4:00p

Developing Custom GIS Tools with ArcGIS ModelBuilder
Demonstration
Presented by: Adam Barnes, U of A – Fayetteville

ModelBuilder is an easy-to-use, visual programming interface built into ArcGIS that allows users to create, view, and edit custom GIS models/tools. There are a number of advantages to developing reusable ArcGIS tools with ModelBuilder, including the ability to view, organize, and document entire geoprocessing workflows, to streamline repetitive processes, and to share methods with others. This demonstration will cover these basic functions of ModelBuilder and is meant to introduce a GIS user to the overall concepts and capabilities offered. The presentation will be geared toward users of ArcGIS that are familiar with ArcMap, ArcCatalog, and the Arc Toolbox, but have little to no previous experience with ModelBuilder.

4:00 – 4:45p

Intro to GDAL and OGR – Open Source Libraries
Demonstration
Presented by: Jason Tipton, Arkansas Geological Survey

GDAL and OGR are open source libraries that many GIS software packages use. Many common tasks that are performed in ArcGIS can be performed from the command line. Some utilities would otherwise require ArcInfo level to perform where others can't be done in ArcGIS. This session will be an introduction to these libraries and will show examples of how to get file information, file conversions, and create a raster index and mosaic. Also, if you've ever wondered what to do with a GeoPDF or a MapInfo .tab file, this will let you know.

Wednesday – Razorback

1:30 – 2:15p

Can't See the GIS for the Clouds
Case Study
Presented by: Matt Charton, a.c.t. GeoSpatial Inc.

Looking at the options for getting your GIS data on the web can be overwhelming these days. Where once there was only ArcIMS, there is now a plethora of "cloud" options. Join us as we take a quick look through some of the most common venues and analyze the differences and benefits of each.

2:15 – 3:00p

Using the power of Google Analytics to improve your visitor's viewing experience.
Technical Presentation
Presented by: Mike Jezierski, Arkansas Game and Fish Commission

This presentation will be an overview of the usage of Google Analytics data within your web based products, and how that data can be used to fast track improvements to the web based service you provide. A detailed discussion on the implementation of the code into your site; and rundown of the types of traffic data obtained from visitors to your site. If time allows, there will also be discussion on the use of Google Maps and Earth to display your data to those users who still prefer using Google's mapping products.

SESSION ABSTRACTS

3:15 – 4:00p

<u>ArcGIS Online Best Practices</u>
Case Study
Presented by: Dan Haag, Esri

    With the ArcGIS 10.2 release, all Desktop for ArcGIS users will have access to an ArcGIS Online Subscription for their organization so they can fully leverage the power of Web GIS. Please join us for this session as we explore the latest capabilities of ArcGIS Online, and best practices for working with an ArcGIS Online Subscription. Attendees will learn how to effectively publish, manage and share content, support mobile workflows on smartphones and tablets, and build useful information products with their authoritative GIS data.

Thursday – Commerce Ballroom A

9:00 – 9:45a

GIS and Billion Dollar Babies in Arkansas
Case Study
Presented by: Shelby Johnson, Arkansas Geographic Information Office

    During the 89th General Assembly of the Arkansas legislature there were two Billion dollar issues requiring decision makers to vote with outcomes that would potentially impact the lives of every Arkansan. This presentation will feature how GIS played a role in Arkansas being chosen as the top site for the $1.1 Billion Big River Steel mill requiring legislature to execute on Amendment 82. The site selection physical criteria read right out of a college GIS course. The second major decision was the state's strategy on implementing provisions in the Federal Affordable Care Act. This part of the presentation will show one method that could have predicted the expansion pool. Finally we will look at the result of the work done to map the existing class and show decision makers where these health care dollars are flowing.

9:45 – 10:30a

Creative GIS Solutions for Local Government
Technical Presentation
Presented by: Andrew Harrison, Schneider Corporation

    Our "Creative GIS Solutions for Local Government" presentation covers how communities around the country have been providing creative solutions to today's problems using GIS. This presentation completely composed of case studies on how other communities have solved problems with innovative GIS ideas. Examples like accident tracking, cemetery mapping, finding lost tax revenue, decreasing appeals, best practices for inventory of assets, simple access to your data, online permitting, and many more. The goal of this presentation will be to share many different ideas for GIS use and for you to leave the session with new ideas that you can go home and try. Don't miss this opportunity to see how other communities are implementing solutions that save them time and millions of dollars!

SESSION ABSTRACTS

10:45 – 11:15a

GIS for Economic Development: Helping Businesses and Communities Grow
Case Study
Presented by: Marcus Arreguin, Rogers State University, OK

GIS plays a key role in economic development, which has as its task helping businesses and communities grow and create wealth and jobs. The role is to provide them with geographic information they need to be make good decisions and focus their efforts.

In this presentation, Marcus will discuss what he does in his GIS work in economic development. Sometimes the output can be more visually oriented, while other times it tends to be more data and list oriented. The work can be very interesting because it often goes beyond routine mapping and gets into spatial analyses such as drive time, heat maps, and trade area creation. The end goals of the analyses for businesses can be visualizing current customer bases, finding potential customers, seeing where competition is, and choosing store locations. For communities, applications can include visualizing commuting patterns, seeing where businesses are concentrated, and creating custom demographic reports.

11:15 – 11:45a

GeoStor
Technical Presentation
Presented by: Shelby Johnson, Arkansas Geographic Information Office

GeoStor is the state's official GIS platform. This is where users go to find and discover GIS data about Arkansas that can be accessed at no fee. The system has many facets.   This presentation is designed to give users navigation throughout the GeoStor user interface. Topics to be covered include keyword searches, terms used by the system, accessing data, understanding metadata and the ISO Topic Categories. We will also examine apps and provide a discussion on the FTP access to dynamic vectors and imagery. The system base maps and feature services will also be discussed to show users how those capabilities can alleviate the need to download large files.

1:30 – 2:15p

Exploiting Real-Time Data with ArcGIS GeoEvent Processor for Server
Case Study
Presented by: Dan Haag, Esri

There is a growing demand among a wide range of communities to incorporate real-time data as a normal part of everyday GIS applications, workflows, and analysis. This session will demonstrate how an organization can integrate and exploit real-time data within the ArcGIS platform. Commercial organizations, transportation managers, public safety analysts, educators, and anyone else with a need to leverage streaming data can use GeoEvent Processor to receive and continuously analyze events from a variety of sources including mobile devices, in-vehicle GPS devices, online social media content, sensor networks, environmental monitoring devices, and more.

2:15 – 3:00p

Moving web apps from Flex/Flash to JavaScript/HTML5
Technical Presentation
Presented by: Russell Gibson, City of Fort Smith, AR

While the Esri Flex API continues to be a worthy RIA platform for web development, there is an inherent limitation: iOS devices do not support Flash. Given the rapidly-growing use of mobile devices, there exists an ever-increasing expectation from users to have the same ability to consume government services whether from a desktop PC or iPhone/iPad. The City of Fort Smith recently began the process of converting many of its mainstream Flex/Flash-based web applications to Esri's JavaScript/HTML5 API. This session will discuss the decision-making and technical processes involved in the conversion process.

SESSION ABSTRACTS

3:15 – 3:45p

A Crash Course: From ArcIMS to Flex
Case Study
Presented by: Sita Nanthavong, Washington County

    The new 2013 year started with Washington County, AR still using Esri's ArcIMS for its public maps. Due to some hiccups, the ArcIMS map was quickly replaced with a Silverlight viewer. When a system upgrade occurred, the Silverlight viewer was then quickly replaced with a Flex viewer. We'll take you on our very quick journey from ArcIMS to Flex and how being agile in terms of teamwork with various county entities and forward thinking kept the maps from having any prolonged downtime.

3:45 – 4:45p

Q&A Panel for Enterprise GIS Server

    We have invited several members of our community who have worked with/implemented ArcGIS Server and they will be available to discuss their experiences and answer questions from the crowd. Join in on the discussion and learn what to do and more importantly – what NOT to do when working with ArcGIS Server.

Thursday – Commerce Ballroom B

9:00 – 9:45a

Multi-date Land-Cover Mapping with NAIP Imagery: Arkansas 2006-2010
Case Study
Presented by: Bruce Gorham

    Digital photographic imagery from USDA's NAIP (National Agriculture Imagery Program) is used extensively for various applications such as natural resource and environmental management, urban planning, etc. These applications are usually limited to small-scale, manual digitization procedures. NAIP imagery, however, provides interesting possibilities for use as primary input data for large-scale and automated land-cover mapping. Although NAIP 4-band imagery lacks the spectral resolution for efficiently extracting land-use information using pixel-based classification methods, geo-object-based image analysis techniques (GEOBIA), which incorporate image characteristics such as texture, proximity, and shape, can be practical for land-cover mapping from aerial imagery. Between July 2009 and June 2013, the Arkansas Land-use/Land-cover (LULC) project developed automated processes for LULC classification from high-resolution images employing GEOBIA techniques. This presentation covers the automated extraction of land-cover information from two dates of NAIP imagery {2006 and 2010) as well as the methodologies developed for mapping land-cover changes between the two dates.

9:45 – 10:30a

Gap Identification and Damage Classification of Deciduous Vegetation by 2009 Ice Storm Process and Workflow
Case Study
Presented by: Tina Rotenbury, USFS

    Using ERDAS Imagine, the district wanted to determine deciduous forest conditions before the 2009 Ice Event, how much loss of deciduous vegetation after the event and what gain/loss of vegetation has occurred since the event. Incorporated various scripts and models as well as Raster Calculator in ArcMap to provide a map product for the district to use to field verify the data.

SESSION ABSTRACTS

10:45 – 11:15a

The Ever-Evolving world of Aerial Imagery - Oblique Style
Case Study
Presented by: Trent Evans and Christian Stitz, GISP, Pictometry

See how georeferenced oblique imagery is changing how GIS professionals distribute data. By sharing this vital information with other agencies, GIS departments become an even more vital resource, particularly for safety, assessment, and planning.

11:15 – 11:45a

High Resolution Urban Land-Use/Impervious Surface Mapping: Milwaukee, Wisconsin
Case Study
Presented by: Bruce Gorham and Adam Barnes, U of A - Fayetteville

This case study details research and development efforts performed at the Center for Advanced Spatial Technologies for the U.S. Environmental Protection Agency's Sustainable and Healthy Communities Research Program. The objective of the research presented here was to create spatially and categorically accurate land-cover maps (including tree canopy and impervious surfaces} from 1 meter resolution USDA-NAIP imagery for the Milwaukee, Wisconsin metropolitan area. Secondarily, the project was intended to further the production of consistent, transferable, and automated methods for developing high-resolution impervious surface/land-cover maps and to transfer the resulting methods and technologies to U.S. EPA for use in the mapping of other urban areas. The presentation covers all aspects of the production process: data acquisition and preprocessing, object-based image analysis (ruleset development}, post-processing in ArcGIS, and accuracy assessment. The presentation also addresses the use of ancillary data sets such as LiDAR in the development of quality land-use, land-cover data.

1:30 – 2:15p

Time Travel: Mapping Dinosaur Trackways in Arkansas
Case Study
Presented by: Malcolm Williamson, U of A – Fayetteville

In the hottest part of the summer of 2011, a team from University of Arkansas and the University of Kansas made an intense effort to document a spectacular dinosaur track site discovered in southwest Arkansas. With hundreds of footprints, covering a site the size of two football fields, the team quickly realized that a creative solution was needed to be able to record as much as possible in the short window of site access that had been granted. Team members from CAST brought a pair of terrestrial LiDAR systems and a 50-foot manlift, enabling data capture of the entire site from overhead. By processing the data as if it were airborne LiDAR, a very high-resolution DEM and hillshade layers were created. Finally, an ArcGIS for Server web mapping site was built to allow everyone to view, measure, and analyze the data.

SESSION ABSTRACTS

2:15 – 3:00p

NHD and LiDAR, a Case Study in Florence County, South Carolina
Case Study
Presented by: Dave Arnold, GISP, U.S. Geological Survey

The National Hydrography Dataset (NHD) is a geodatabase representing 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 is maintained and updated via a stewardship process between the United States Geological Survey (USGS) and a principal steward in each state. The NHD was originally created at a scale of 1:100,000 and was later updated to 1:24,000 however, many states are now further increasing the scale, which is broadly defined as local resolution. To create local resolution NHD, Light Detection and Ranging (LiDAR) generated hydrographic break lines are becoming quite common. We will take a look at how state stewards are using LiDAR to update both the NHD and WBD, with a particular emphasis on a pilot project conducted in Florence County, South Carolina in early 2011.

3:15 – 3:45p

NHD: What's New with NHD in AR
Case Study
Presented by: Katy Hattenhauer, Arkansas Department of Environmental Quality

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. In 2013, in conjunction with the AGIO, ADEQ created an event dataset, which was added to the NHD to aid the "Tum Around, Don't Drown" efforts. With all of these things combined, the TWG is moving forward to develop and maintain higher resolution NHD datasets across the state.

3:45 – 4:15p

Use of GIS in Flood Inundation Mapping by the USGS Arkansas Water Science Center
Case Study
Presented by: Drew Westerman

One mission of the U.S. Geological Survey (USGS) is to provide reliable scientific information to minimize loss of life and property from natural disasters. Flooding in the U.S. accounts for approximately 90 fatalities per year. The USGS provides tools to assist in understanding flood risks and making cost-effective mitigation decisions. The USGS applies Geographic Information Systems (GIS) to accurately construct, implement, and analyze past or projected flood conditions to create flood inundation maps. Three case studies will be presented to highlight the use of GIS with Next Generation Radar (NEXRAD) precipitation data, geo-referencing of stream channel survey data, and visualization of the modeled extent and depth of floodwaters. The development of a GIS web application for the Buffalo River will be presented to show the use of a flood inundation map library linked with a USGS streamgage that will help in the identification of immediate risks during a flood.

SESSION ABSTRACTS

4:15 – 4:45

LiDAR: The 3rd Dimension
Technical Presentation
Presented by: Nancy Graham, QCoherent Software

We often think of LiDAR data as a base dataset for creating an elevation model and, indeed, it serves this purpose in a spectacular manner. But did you know that LiDAR data can be used in a wide variety of other ways? In this presentation we will discuss the 3-dimensional aspects of LiDAR data relative to how this is beneficial to GIS analysis, explore some common ways to derive significant value from LiDAR data sets, and show how to use LiDAR to enhance images and vector files within the ArcGIS environment. Examples of practical use include dynamic contour layers superimposed on orthophoto backdrops, breakline modification to terrain information and profile visualization. The overall aim of this talk is to provide GIS users who have access to LiDAR with ideas that can allow them to unlock hidden value in these often underused data sets.

Thursday – Commerce Ballroom C

9:00 – 9:45a

Inter-What? Getting Re-acquainted with Intergraph: Past, Present and Future Capabilities in Geospatial Technology
Case Study
Presented by: Joseph R. (Joe Bob) Penor, Intergraph Corporation

Did you know that Intergraph provides a complete geospatial software portfolio of products? In the State of Arkansas, Intergragh has been associated with commercial GIS products since 1994 when the Center for Advanced Spatial Technologies (CAST) became one of the first four "Intergraph Centers of Excellence for the Mapping Sciences". In 2001, Intergraph reoriented its business model to focus primarily on providing solutions. Since joining the Hexagon family of companies in 2010, Intergraph has remodeled and reintroduced its proven GIS platform, GeoMedia® and taken a bold new direction with the complete Intergraph geospatial platform, including ERDAS IMAGINE®. This presentation will cover Intergraph's substantial history in the computer and geospatial industry, including two of its major contributions to the Arkansas educational community, CAST at the University of Arkansas and the EAST program. We will also detail Intergraph's new vision and direction as it shapes the future of the geospatial industry.

9:45 – 10:30a

State-Level Resource Planning using Raster Analysis
Case Study
Presented by: Brian Culpepper and Hanna Ford, U of A – Fayetteville, and Pam Cooper, USDA/NRCS

An assessment of the risks to the primary natural resource concerns plus the prioritization of agency programs to protect these resources was the goal of the Natural Resources Conservation Service (NRCS) Statewide Resource Assessment (SRA) project. The Arkansas NRCS office partnered with the Center for Advanced Spatial Technologies (CAST) at the University of Arkansas and many other natural resource partners to leverage the knowledge of our natural resource experts, the existing digital dataset and the modeling capabilities within ArcGIS to design and develop over twenty unique models to represent the relative risks to each NRCS targeted resource concerns within Arkansas. As part of the GIS technical support team for this project, we would like to share our experiences with this project and explain how the planning and model development process has sharpened the focus of resources from the NRCS staff and other natural resource decision makers within Arkansas.

SESSION ABSTRACTS

10:45 – 11:15a

New Cost Effective Method of Mobile Data Gathering
Technical Presentation
Presented by: Ashok Wadwani, Applied Field Data Systems

The presentation will cover GIS/GPS field data collection on the Android and the iPad Platforms. Not only you can collect feature/attribute data but also display the data in the field on a Google map. Once the field data is collected, it can be transferred instantly if WiFi connection is available or saved and transferred later. The program can use built-in GPS or external GPS for higher accuracy. External sensors such as Laser Range Finder can also be used with Bluetooth option. The program can read various types of bar codes including the new DIMP (Distribution Integrity Management program) codes. Once the data is downloaded various custom reports and shapefiles can be generated.

11:15 – 11:45a

Community Crowdsourcing: Using Public Interaction to Maintain Community Infrastructure
Case Study
Presented by: Joseph R. (Joe Bob) Penor, Intergraph Corporation

Today's smartphone technology allows greater interaction with friends, family, and the public through mobile access to social networks, texting and photo sharing. However, the ability to take a picture and tie it to a real-world location via the phone's internal GPS can be used for more than just fun - it can be a powerful tool for community improvement. Intergraph® Mobile Alert is a free app that lets organizations like public works, utilities, and law enforcement leverage input from the public to learn about issues. By working directly with the community, problems are identified earlier and addressed faster, before the problem grows larger and more costly to fix. This presentation demonstrates how Intergraph Mobile Alert can help residents statewide, countywide, and at the city level communicate vital infrastructure information to the responsible agencies.

1:30 – 2:15p

All the cool kids are doing it - Mobile Maps
Case Study
Presented by: Scott Lane, Arkansas Game and Fish Commission

Almost everyone is carrying around a mobile device of some sort. Being able to utilize these devices as methods to decimate, collect and evaluate information is becoming easier every day. Using ArcGIS Online and ESRI's applications this process has become very easy for users to share data and tools with others. Mobile data devices are redefining the "sandbox".

2:15 – 3:00p

Intro to ArcPad Studio
Technical Presentation
Presented by: Chip Stokes, USFS

A look into the basics of creating customized forms for ArcPad that can be used for field collection. We will look at some basic capabilities, such as: text boxes, drop downs, taking hyperlinked photos, etc. Some USFS forms will also be looked at to see the effectiveness of the forms. By then end of this presentation the viewer will be able to create and deploy forms to the field that can easily be brought into ArcGIS on their desktops.

SESSION ABSTRACTS

3:15 – 3:45p

<u>Trimble TerraFlex – geospatial data collection and management</u>
Demonstration
Presented by: Chad Hicks, nei

Fast, efficient, geospatial data collection across a fleet of mixed devices. Comprised of Mobile software and Cloud services, with Trimble® TerraFlex™ software collect, process, and manage your data. With support for iOS, Android, and Windows® Mobile field workers can work with their choice of device even their personal phone, and have the same experience, collect data in the same way. Eliminate the need to carry GPS devices, cameras, clipboards, and printed maps, by centralizing onto a single device.

Field data is automatically synced with a central server, streamlining office operations and driving higher productivity and cost savings. No need to return to the office to enter field data. No double entry of information re-typing paper forms. Save time, reduce errors. Work even in remote areas, with data collection that is fully functional offline. When field workers are back in range, data will automatically sync back to the office.

3:45 – 4:15p

<u>New Cool Toy for GIS Mapping</u>
Case Study
Presented by: Ashok Wadwani, Applied Field Data Systems

GIS mapping is widespread and every company is extensively mapping with GPS or using data collected with GPS. As the GPS market is growing, the Geospatial industry is working hard to get new and improved products. One such product is the IKE- an integrated GPS/ COMPASS/LASER/ CAMERA all in one unit. Not only can you use the unit for regular offset mapping but can do missing lines and tree assessments with the unit. All the data is displayed on the screen as you collect it. One additional feature is the capability of taking a picture of a pole or structure and calculating the heights of different attachments later in the office. Feature/attribute questions with pull down menus are easily configured. The unit runs Windows mobile OS. Users are able to collect data with this device much faster, safely and accurately. The presentation will cover some typical applications using this new tool.

4:15 – 4:45p

<u>Lightening Talks</u>

Open Forum - short five minute presentations with no more than five slides. They are quick, to the point and fun to watch.

SESSION ABSTRACTS

9:00 – 9:45a

Advancing Geospatial Education in the State of Arkansas
Case Study
Presented by: Malcolm Williamson, U of A - Fayetteville

As members of the Arkansas GIS Users Forum, most of us are well aware of the increasing demands for geospatial expertise, both in the form of the expanding number of geospatial professionals and in the growing number of fields which are making use of geospatial skills and technology. We've been fortunate to have had some notable geospatial education programs in our state, both in higher ed and in K -12 schools, but there is a need to continue raising the bar. CAST, along with the UA Department of Geosciences, the EAST Initiative, and a variety of collaborators around the state, is making a concerted push to improve the availability and depth of geospatial education for Arkansas. Key to this effort is the input of geospatially-oriented companies and agencies in our state, to ensure that the skills needed in today's and tomorrow's jobs are being taught to our students and professionals.

9:45 – 10:30a

The Life and Times of the GISP Certification & its Place in a Forward-Moving Geospatial Career
Case Study
Presented by: Bill Hodge, GISP, GISCI

This presentation will describe the history and background of the GIS Certification Institute and its administration of the GIS Professional Certification Program. Emphasis will be given to the current state of the program and the creation and addition of an exam component by 2015

10:45 – 11:15a

NAPSG (National Alliance for Public Safety GIS) Foundation
Case Study
Presented by: Peter O'Rourke, NAPSG Foundation

Peter will present information regarding the National Alliance for Public Safety GIS Foundation, and how Arkansas public safety officials can participate in this organization. In particular, O'Rourke will describe the regional structure of the Foundation and the many resources that NAPSG provides to public safety across the country.

11:15 – 11:45a

Exploring the Network Analyst Toolbar; Getting the most from your street network investment
Technical Presentation
Presented by: Chris Boudreaux, Conway Corporation

This presentation will highlight the Network Analyst Toolbar and the development of the street network feature class to solve a closed street and re-routing scenario. Using out of the box ArcGIS 10.1 tools, I will demonstrate Routing with directions (traveling sales distribution), Rerouting with line, point or polygon barriers, and Closet Facility to multiple user defined points. The best take away from this presentation will be the development work on the street feature class that is required to run the routing analysis. I will discuss the tips, tricks, pitfalls from my work in developing a network dataset for Conway Corporation.

SESSION ABSTRACTS

1:30 – 2:15p

Transportation Analysis Process – Using Geoprocessing and ArcGIS Model Builder to Evaluate a Road Network for Sustainability
Case Study
Presented by: Brian Barns, USFS

Road networks are important for providing access to communities and resources, and using best management practices, any harmful effects to the environment are minimized. Using the Travel Analysis Process, various indicators are developed by resource specialists, and a report is generated showing recommendations for each road, which can be used to inform future travel management decisions. As an example, one aquatic resource indicator developed for GIS analysis was the proximity of a road to a stream. Using ArcToolbox and Model Builder, the length of road segments within 100 feet of a stream was calculated for each road in the network.

2:15 – 3:00p

Creating the All Public Roads Linear Referencing System (LRS) - with your help!
Technical Presentation
Presented by: Sharon Hawkins, Arkansas State Highway and Transportation Department

All State Transportation Departments are now required to have a Linear Referencing System (LRS) network for all public roads in their respective state. This presentation will explain the new requirement from the Federal Highway Administration (FHWA), discuss the work already accomplished on the LRS, the challenges and obstacles to meet the requirement and our plans to work closely with the Arkansas Geographic Information Office, other state agencies, counties and cities to complete the requirement. In addition, this presentation will highlight how an All Public Roads LRS will be useful at the national, state, county, city and community levels.

3:15 – 3:45p

GIS as a Decision Support Tool for Pavement Management in AHTD
Case Study
Presented by: Sharon Hawkins, Arkansas State Highway and Transportation Department

The Arkansas State Highway and Transportation Department AHTD maintains 16,000+ centerline miles of highways. Pavement condition is monitored by Automatic Road ANalyzer (ARAN) which collects International Roughness Index (IRI), Rutting, Right-Of-Way (ROW) images, pavement images (cracking) and other roadway data for every 5 meters in the network. This large amount of data, if not properly summarized and presented, will become a burden in terms of generating valuable information for decision making. This presentation demonstrates the power of GIS in supporting decision making by visualizing the data, identifying the needs, prioritizing the projects, and summarizing and comparing the regional performance. GIS also shows great advantages at integrating the pavement condition data with other layers of data in the department such as roadway network, construction and maintenance job records.

SESSION ABSTRACTS

3:45 – 4:15p

Impacting Local Government - Updating Functional Classification using GIS
Case Study
Presented by: Greg Nation, Arkansas State Highway and Transportation Department

After every decennial census, the Federal Highway Administration (FHWA) requires the State to update the functional classification of their roadways. Functional class determines a roadway's federal aid eligibility (aka funding). This will be the first time that functional class will be updated and reported geospatially. Most cities, metropolitan planning organizations (MPOs) and counties are unaware or only vaguely familiar with the importance of functional class, let alone the update process utilizing GIS. This presentation will summarize the importance of functional class and outline the update process. Also, it will give AHTD a chance to directly interact with city and county GIS personnel that will be responsible for updating functional class. As a note, the submitted datasets from the counties and cities will become part of a national geospatial network that spans the entire United States.

4:15 – 4:45p

Roadway Safety in Arkansas – Toward Zero Deaths
Case Study
Presented by: Andrew Brewer, Arkansas State Highway Transportation Department

Unintentional injury is the leading cause of death in Arkansas between one and 44. And, the leading cause of unintentional injury deaths in Arkansas is motor vehicle crashes. In 2012, 554 people lost their lives on Arkansas roadways. Arkansas had the fourth highest fatality rate in the nation in 2011.

Despite the number of lives lost on our roadways, there has been significant recent progress. The number of people killed on our roadways is at the lowest level in almost 30 years. The most recent fatality rate in 2012 is 1.65 deaths per 100 million vehicle miles, the lowest it has ever been in Arkansas going back to at least 1970.

This year, AHTD has adopted a Toward Zero Deaths strategy to continue saving lives. Data analysis, including the use of GIS, is a major component of this effort. This presentation will highlight some of the methods from AHTD.

Friday – Commerce Ballroom A

8:30 – 9:15a

Understanding and Using Census Data for Analysis and Mapping
Case Study
Presented by: Inderpreet Singh Farmahan (Sunny), U of A – Little Rock

Learn what American Community Survey (ACS) is, why it is important, what are 1, 3 and 5-year estimates and how to access the data for use in GIS. Learn about other Census data products using the web and desktop tools made available by U.S Census Bureau including American FactFinder Data Tool and DataFerrett Basic and Advanced.

SESSION ABSTRACTS

9:15 – 10:00a

School District Boundaries?
Case Study
Presented by: Shelby Johnson, Arkansas Geographic Information Office

An often quoted figure states that 60% of every tax dollar in Arkansas is used to support public education. The significance of this amount of money would make you think the accuracy of these school district lines would be critical. School District boundaries have been mapped for years but their quality and accuracy has been a source of concern for the GIS community since these data were first digitized. This topic covers some of the work done to improve the accuracy, some reasons for the discrepancies that exist, including no single collection of school district boundary legal descriptions, numerous methods by which they change (consolidation, annexation or legislation.) Some examples will be highlighted that show some of the problems that arise and finally will offer up a potential solution to this difficult problem and maintaining accurate school district boundaries.

Friday – Commerce Ballroom B

8:30 – 10:00a

What did you miss at the Esri User Conference, aka What's New with ArcGIS
Case Study
Presented by: Dan Haag, Esri

Join us as we share Esri's vision of Web GIS and ArcGIS as a complete geospatial platform. We'll explore enhancements in the ArcGIS 10.2 release which support the sharing of content and services on all devices, across the cloud, and on-premise providing transformational opportunities for your organization. We'll touch on updates to the ArcGIS system which support all users of GIS data regardless of their experience, and discuss our ongoing efforts to support standard ArcGIS for Local and State Government templates.

Friday – Commerce Ballroom C

8:30 – 9:15a

GIS at War: Application of GIS in Modern Warfare
Case Study
Presented by: Seth LeMaster, Arkansas Geographic Information Office

From Bunker Hill to Gettysburg; from the Beaches of Normandy to the jungles of Vietnam; from the streets of Iraq to the mountains of Afghanistan; geographic data has played a key role in every military conflict throughout our nation's history. With the ongoing development of GIS technology, geographic data can assist our military leaders in keeping the tactical advantage over our enemies. GIS is used on the modern battlefield to analyze and study helicopter landing zones, compounds of interest, line of sight assessments, engineering projects, route planning, damage assessments and many more. With such an assortment of projects and data, GIS analysts who support military operations must become proficient with a variety of software programs and applications. Ultimately, with the collaboration of different military branches and government agencies, GIS paints a complete picture of the battlefield for leaders and policy makers alike.

SESSION ABSTRACTS

9:15 – 10:00a

Arkansas Master Address Program (AMAP): Where have we come from? AMAP Development and Maintenance Issues.
Case Study
Presented by: Jonathan Duran and Adrian Clark, Arkansas Geographic Information Office

    A physical address is one of the most basic pieces of location data collected and utilized by citizens, businesses, and government entities. They are part of the "backbone" data for E9-1-1 dispatch. Beginning in 2011, AGIO, in conjunction with Connect Arkansas, has worked on an address mapping grant program with several counties for the purpose of broadband data development. Upon completion, this effort will have added 28 address datasets into GeoStor.
    Started just 3 short years ago with only a few hundred-thousand physical address features, the current published count stands at about 1.2 million digitized points (of an expected 1.4 million). We have collectively created a maintenance problem of magnificent proportion; especially when the users and uses of the data are growing exponentially. This presentation will describe how we got where we are, explain the existing production and maintenance environment and then show how this issue has-is-and-will affect every citizen.

Friday – Razorback

8:30 – 10:00a

Pulaski County Surveillance with a Remote GPS Guided Helicopter
Demonstration

POSTER ABSTRACTS

Title	Author	Affiliation
North-Central Earthquake Region Poster	Jerry W. Clark, GISP	AGS
ASN Poster	Jerry W. Clark, GISP	AGS
Annual Truck Parking Study	Greg Cullum	AHTD
New and Improved Web Soil Survey 3.0!	Pam Cooper and Pam Jannise	USDA/NRCS
Documenting and Preserving Historic Road Culverts	Mary Z. Brennan	USFS
Reading and Writing Spatial Data for the Non-Spatial Programmer	Chad Cooper	CAST
Using GIS to Determine Mean Tornado Direction and Path Length During Different ENSO Events	Joshua Bregy	UCA
Industrial Strength: MidAmerica Industrial Park Demographic & Workforce Report	Marcus Arreguin	www.RSUinnovation.com
The View From Above – a Web Application	James Holley	Pagis
Stratigraphy and the State Geologic Map	Nathan Taylor	AGS
NRCS Web Soil Survey Web Application		NRCS
ADEQ EnviroView and MethViewer		ADEQ

POSTER ABSTRACTS

Author: Jerry W. Clark, GISP
Affiliation: Arkansas Geological Survey (AGS)
Title: North-Central Earthquake Region Poster

This map illustrates the location and magnitude of reported earthquakes that have occurred in north-central Arkansas from 1965 to 2013. The data source for the earthquakes depicted on this map is derived from the Arkansas Geological Survey (AGS) earthquake catalog. The catalog has been compiled from various sources and publications and includes date, time, latitude, longitude, magnitude or intensity and depth information. Some event records may contain incomplete data due to their date and/or source. The AGS earthquake catalog is dynamic and continually updated as event parameters are modified, new events are added, and occasionally, events are deleted. The seismic areas/zones, illustrated on this map are derived from various geologic sources and publications on file at the AGS. Depicted seismic areas/zones, are for illustration purposes only and may not represent all the seismically active features within a given location or relate to the origin of the earthquakes depicted on this map.

Author: Jerry W. Clark, GISP
Affiliation: Arkansas Geological Survey (AGS)
Title: ASN Poster

The Arkansas Seismic Network (ASN) consists of six state-of-the-art permanent broadband seismic stations strategically placed within selected State Parks across Arkansas. The ASN was funded through the Arkansas Governor's General Improvement Fund in 2008. The goal of the ASN is to establish better and more uniform earthquake detection outside of the New Madrid seismic zone (NMSZ). The network was installed in the spring of 2010 and is seamlessly integrated with the regional and national seismic networks. The ASN is operated and maintained in cooperation with the Arkansas Geological Survey (AGS), Center for Earthquake Research and Information (CERI) at the University of Memphis and Arkansas State Parks (ASP). The ASN network has been assigned the code of AG.

Author: Greg Cullum
Affiliation: Arkansas State Highway & Transportation Department (AHTD)
Title: Annual Truck Parking Study

Since 2006, the Arkansas State Highway and Transportation Department annually conducts a single overnight survey of the number of commercial trucks parked at public and private facilities along the Interstate System. The purpose of this study is to gage legal and illegal parking at facilities due to congestion. Illegal parking can have several effects on the roadway and drivers, including increased damage to shoulders, and greater risk of collision with other vehicles. Knowing the location of parking facilities and where trucks regularly park illegally can allow transportation officials to determine how best to mitigate these effects.

Authors: Pam Cooper and Pam Jannise
Affiliation: USDA/NRCS
Title: New and Improved Web Soil Survey 3.0!

Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation (NRCS) and provides access to the largest natural resource information system in the world. NRCS has soil maps and data available online for more than 95% of the nation's counties and anticipates having 100% in the near future. The site is updated and maintained online as the single authoritative source of soil survey information. Soil surveys can be used for general farm, local, and wider area planning. The new features of Web Soil 3.0 bring a much broader level of accessibility than ever before. Some improvements include: Area of Interest (AOI) size limit increase, improved maps and imagery, editable map properties, improved display of special line features, instant soil data downloads direct from web soil survey and many more.

POSTER ABSTRACTS

Author: Mary Z. Brennan
Affiliation: United States Forest Service - Pleasant Hill, Boston Mountain, & Mt. Magazine Ranger Districts (USFS)
Title: Documenting and Preserving Historic Road Culverts

The landscapes that comprise the Ozark-St. Francis National Forests today were significantly shaped by the work done by the Civilian Conservation Corps (CCC) and Works Progress Administration (WPA) in the 1930s and early 1940s. The large contributions of money and manpower provided by these two federal programs made possible an adequate transportation and communication system for fire control and forest administration. Many forest recreational facilities and lakes were constructed during the period 1933-1942, as were many other administrative improvements including roads and truck trails, bridges, culverts, telephone lines used both by the public and forest management.

Author: Chad Cooper
Affiliation: Center for Advanced Spatial Technologies (CAST)
Title: Reading and writing spatial data for the non-spatial programmer

Location has become ubiquitous in today's society and is integral in everything from web applications, to smartphone apps, to automotive navigation systems. Spatial data, often derived from Geographic Information Systems (GIS), drives these applications at their core. More and more, non-spatial developers and programmers with little or no knowledge of spatial data formats are being tasked with working with and consuming spatial data in their applications. Spatial data exists in a wide variety of formats which often adds to the confusion and complexity. Fortunately, Python is tightly integrated, accepted, and used within the GIS community, and has been for some time. Python packages and other libraries that are accessible through Python exist to both read and write many spatial data formats. With the help of these packages and libraries, Python developers can easily manipulate, read, and write data formats such as ESRI shapefile, raster datasets, KML, and LiDAR.

Author: Joshua Bregy
Affiliation: University of Central Arkansas-Student
Title: Using GIS to Determine Mean Tornado Direction and Path Length During Different ENSO Events

El Niño Southern Oscillation (ENSO) is a major driving force behind global weather patterns, including tornadoes. Knowing that ENSO plays an important role, it is essential that we learn more about its influence on tornado dynamics. This serves to not only advance the field of atmospheric science, but also to aid with issues concerning public safety. Using geographic information systems (GIS), we were able to measure the mean direction and path length of tornadoes (1950s-present) for different ENSO events (El Niño, La Niña, and neutral years) as well as the geographic mean for tornadic activity. The data was sorted into different ENSO event categories and mapped, geospatial analysis tests were run on the data to yield results that indicated variation among the different ENSO events. A difference in means was determined via a one-way analysis of variance (ANOVA) test, which will be discussed in greater detail during the presentation.

Author: Marcus Arreguin
Affiliation: www.RSUinnovation.com
Title: Industrial Strength: MidAmerica Industrial Park Demographic & Workforce Report

The MidAmerica Industrial Park is Oklahoma's largest industrial park, serving nearly 80 companies and set on 9,000 acres in Mayes County east of Tulsa. Marcus produced a 24-page statistical report at the Innovation Center. This report serves as a launching pad for developing a strategic plan to grow the park into a community where Oklahomans can live, work and play. This poster covers key demographic, economic, and workforce statistics found in the full report. The poster contains maps Marcus created of the study area, photos he took at the industrial park, and data he researched and calculated.

POSTER ABSTRACTS

Author: James Holley
Affiliation: Pulaski Area Geographic Information System (PAgis)
Title: The View From Above – a Web Application

The View From Above application allows users to compare aerial photographs from all of the PAgis ortho-photography image catalogs: 1998, 2006, 2009 and 2012. The map switcher and/or slider bar is used to see how the landscape of Pulaski County has changed over time. Users can search by address, intersection, or parcel to view specific areas in the ever-changing landscape of Pulaski County. The parcel search is a powerful tool for accessing information from the assessor's office; users can search by the parcel owner's name, parcel ID number, or by selecting an area with a spatial search tool. Once the user selects the parcels of interest, they have the option of exporting the files to a CSV or TEXT file. A bookmark widget is available for users to view local areas of interest and save locations of their own. This application provides a window to the past for Pulaski County.

Author: Nathan Taylor
Affiliation: Arkansas Geological Survey (AGS)
Title: Stratigraphy and the State Geologic Map http://www.geology.ar.gov/geology/strat_geomap.htm

This application combines two of the Arkansas Geological Survey's most popular products - the state geologic map and the stratigraphic summary of Arkansas. Like the stratigraphic summary, the application is organized by physiographic region. When a user selects a physiographic region a polygon outlining the region is placed on the map and a description is shown underneath. Also, a list of geologic formations that are found in the physiographic region is generated. A user can select a formation which will outline the formation on the map and provide a description underneath. For most formations a correlation chart is shown to the left of the map as well. Also, a user can filter the list of formations by selecting an Age from the drop-down list.

Author: NRCS
Affiliation: NRCS
Title: New and Improved Web Soil Survey 3.0!

Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation (NRCS) and provides access to the largest natural resource information system in the world. NRCS has soil maps and data available online for more than 95% of the nation's counties and anticipates having 100% in the near future. The site is updated and maintained online as the single authoritative source of soil survey information. Soil surveys can be used for general farm, local, and wider area planning. The new features of Web Soil 3.0 bring a much broader level of accessibility than ever before. Some improvements include: Area of Interest (AOI) size limit increase, improved maps and imagery, editable map properties, improved display of special line features, instant soil data downloads direct from web soil survey and many more.

Author: ADEQ
Affiliation: Arkansas Department of Environmental Quality
Title: ADEQ EnviroView and ADEQ MethViewer

ADEQ has participated with other state and federal agencies in the creation of a library of environmental resource mapping layers. These include permitted sites, facility data, protected lands, wetlands, watersheds, and many others. Using GIS, these layers have been combined with additional map layers to create numerous maps and applications for ADEQ staff, planners, consultants, and the general public.

The ADEQ GIS Section has created EnviroView, a web-based application to utilize this valuable data. A user can use this application to create a customized map, and then print out the result or incorporate it into your documents or other websites.

Another web-based application created by the ADEQ GIS Section, and Computer Services Division, is MethViewer. A user can use this application to view the latest properties believed to be contaminated by the illegal manufacture of drugs. For a complete list of such properties, see Methamphetamine Contaminated Properties.

BIENNIAL AWARDS

The Arkansas GIS Users Forum is proud to honor those that have shown initiative, innovation, and service to the Arkansas GIS Community. To that end, we have developed awards that are given at the biennial symposium to show our appreciation for their efforts. There are four award categories:

Excellence Award

The Arkansas GIS Users Forum Excellence Award recognizes user organizations for their outstanding application of geospatial technology. Candidates for the Excellence Award demonstrate dedication, insight and a high degree of initiative in implementing successful geospatial systems. The award recognizes the accomplishments of organizations whose success and attention to quality leads others by example.

Innovator Award

The Arkansas GIS Users Forum Innovator Award recognizes the unique and significant contributions of pioneering organizations that have pushed the envelope of geospatial technology through innovative development of a technology, service or application applied within the state of Arkansas. Candidates for this award include organizations whose vision and forward thinking have successfully implemented cutting-edge advances and innovative solutions that benefit geospatial users. Nominees for this award may include any user organization, including government agencies and nonprofits.

Distinguished Service Award

This award is bestowed on an individual for extraordinary personal contribution to the mission and success of the Arkansas GIS Users Forum. Candidates for this esteemed award have demonstrated many years of dedicated service to the Arkansas GIS Users Forum, giving unselfishly of their time and energy. Their purposeful commitment has made a definitive and positive impact on the state. Winners of the Arkansas GIS Users Forum Distinguished Service Award will be inducted into the Arkansas GIS Users Forum Hall of Fame at the biannual Arkansas GIS Users Forum Conference. Nominees may be any current or former member of the Arkansas GIS User's Forum.

Lifetime Achievement Award

This distinguished award recognizes an individual's outstanding contribution and long standing commitment to the Arkansas geospatial community. Candidates for this award include those whose pioneering spirit and demonstrated dedication have contributed greatly to GIS in Arkansas and whose example serves as an inspiration to others. Nominees may be any current or former member of the Arkansas GIS Users Forum.

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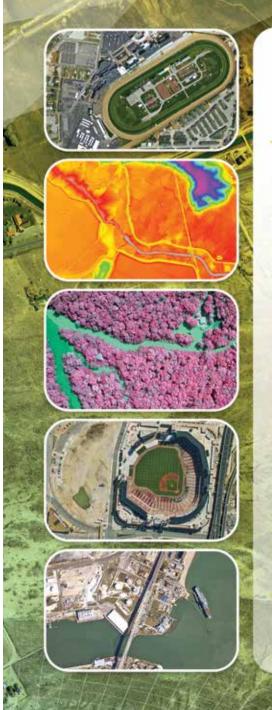
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Ozark-St. Francis National Forests

Welcome to the USDA Forest Service

We are entrusted with 193 million acres of forests and grasslands. It's a big task, but one that we take seriously. We are dedicated to restore and enhance landscapes, protect and enhance water resources, develop climate change resiliency and help create jobs that will sustain communities.

Chief Tom Tidwell

Forest Service National GIS Program

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.

The Ozark-St. Francis National Forests are really two separate Forests with many differences. They are distinct in their own topographical, geological, biological, cultural and social differences, yet each makes up a part of the overall National Forest system.

The Ozark National Forest covers 1.2 million acres, mostly in the Ozark Mountains of northern Arkansas. You'll find the tallest mountain in the State, Mount Magazine, and an incredible, living underground cave--Blanchard Springs Caverns.

The St. Francis National Forest covers 22,600 acres in eastern Arkansas, one of the smallest and most diverse forests in the country.

These forests are generously endowed with recreational opportunities for camping, hiking, swimming, fishing, hunting, boating, scenic drives, picnics sites, and opportunities for wildlife viewing also abound.

Ozark-St. Francis National Forests
605 West Main
Russellville, AR 72801 (479) 964-7200

THE BEST DATA
IS LOCAL DATA,

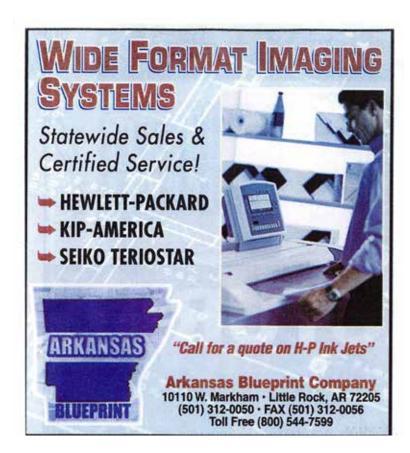BECAUSE IT'S CREATED
AT THE SOURCE.

The Center for Advanced Spatial Technologies (CAST) was established within the J. William Fulbright College of Arts and Sciences at the University of Arkansas, Fayetteville in 1991. Over the past twenty years, the multidisciplinary research staff have covered a broad range of themes and domains, all connected through the thread of acquisition and analysis of spatially referenced data and processes.
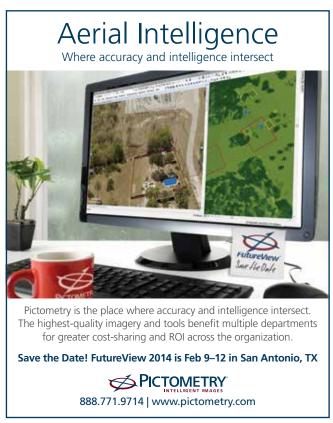
Research at CAST continues to be strongly multidisciplinary, involving faculty, staff and students who are domain specialists from many disciplines and institutions.
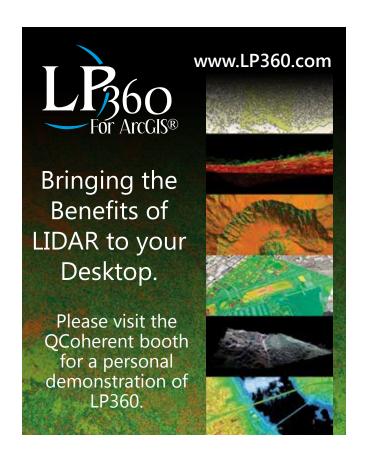
Geographically, CAST's research scope is global with current active research efforts in areas ranging from South America, Middle and Near East, Europe and around the United States.

CAST research teams are engaged in both basic investigations in the broadly defined areas of geomatics, which includes geospatial methods, theory and their application to a wide range of domain areas (including archaeology, visualization and animation, environmental studies, community development and others). Specific details on these areas and others are also accessible from the CAST website.

Current areas of research emphasis include geospatial method and theory, enterprise geospatial systems and geospatial interoperability, high density survey, photogrammetric techniques, remote sensing, spatial decision support systems and visualization.

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