

South Central
Arc User Group

2009 Oklahoma Conference



Dear SCAUG Members,

On behalf of the Oklahoma SCAUG Steering Committee, we would like to welcome everyone to the 12th annual Oklahoma SCAUG Conference. Our theme this year is “GIS is GREEN – Geographic Readiness for Energy and the Environment” and we have really strived to make this a truly green conference. The plates, bowls, cups and utensils for all the food served today are made from sustainable materials and fully compostable. Almost all of the giveaways are eco-friendly and made from recycled or sustainable materials. The tee shirts are made of hemp and organic cotton. Hemp is an extremely sustainable material. It only uses 1/20th the amount of water to grow and process as regular cotton, and it is naturally less vulnerable to insects and weeds so pesticides and fertilizers are not needed in growing hemp. Finally, all the printed materials for this conference have been copied on paper that is made from as much post-consumer waste as was available and affordable! We really want to make the environmental footprint for our conference as small as possible.

In addition to our commitment to adhere to our theme, we have rounded up the best information about GIS in Oklahoma and put it together in user presentations, panel discussions and tech sessions. We hope you will take away many new ideas and pieces of information that will enhance your use of GIS software. Please fill out the surveys available in each breakout room so we can make next year's conference even better and more relevant to your educational needs.

Have a great day and feel free to pull any of us aside if you have questions or comments about the conference.

Respectfully,

The 2009 Oklahoma SCAUG Steering Committee



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SCHEDULE

7:30 – 4:30 pm	Registration desk open all day	
8:00 – 8:20 am	Breakfast served	Rotunda A
8:20 – 9:30 am	Welcome Scholarship Winners Announced Keynote Address: Dr. Stephen Stadler, <i>GIS and Oklahoma Wind: The Zephyr Box Project</i>	MCH (Main Conf Hall)
9:30 – 10:15 am	Break and Vendor Visit	MCH

User Presentations

10:15 – 10:45 am

<i>GeoCIP® – A History & Evolution of a State-Wide GIS-Based Infrastructure Program</i>	Room 109/110
<i>Stormwater Data Collection and Watershed Basin Creation</i>	Room 111/112
<i>Building National Elevation Datasets</i>	Room 210
<i>Using Digital National Wetlands Inventory Maps to Estimate Changes in Wetland Acreage</i>	Room 211

10:50 – 11:20 am

<i>GeoCIP® – Creating GIS Training to Standardize Project Deliverables and GeoCIP® – Data Conversion & Standardization of Independent Layers into a Geodatabase</i>	Room 109/110
<i>Utilizing GIS Mapping in Emergency Management during the February 10, 2009, Edmond, Oklahoma Tornado</i>	Room 111/112
<i>A Picture is Equal to a Thousand Words: Use of GPS Enabled Cameras in GIS/GPS Mapping</i>	Room 210
<i>Using Helicopter Electro-Magnetic Survey Maps and Cross-sections and Aerial Photos to Locate and Differentiate Salinity Pollution Sources</i>	Room 211

SCHEDULE

11:25 – 11:55 am

<i>GeoCIP® – Developing a Geodatabase Model for a State-Wide GIS-Based Infrastructure Assessment & Improvement Planning Program</i>	Room 109/110
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<i>Applications of GIS and Stormwater Engineering</i>	Room 111/112
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<i>Determining the Most Efficient Locations for Solar Photovoltaic Cells in the State of Oklahoma</i>	Room 210
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<i>Using Geologic Data and GIS to Make Base of Treatable Water Maps that Protect Fresh Water Aquifers</i>	Room 211
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12:00 – 1:15 pm	Lunch	Rotunda A
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12:45 – 1:15 pm – Poster Competition	Poster Gallery
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Panel Discussions

1:15 – 2:15 pm

<i>Parcel Data</i>	Room 109/110
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<i>ArcGIS Server Implementations</i>	Room 111/112
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<i>Emergency Management GIS</i>	Room 210
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<i>Central Oklahoma Red Dirt Monopoly (Game)</i>	Room 211
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2:15 – 3:00 pm	Afternoon Break and Vendor Visit	MCH
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Technical Sessions

3:00 – 3:40 pm	ESRI Technical Session 1	MCH
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3:40 – 3:50 pm	Break and Vendor Visit	Rotunda A
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3:50 – 4:30 pm	ESRI Technical Session 2	MCH
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4:30 – 5:00 pm	Closing Remarks and Door Prizes	MCH
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SPECIAL THANKS TO THIS YEAR’S PREMIUM LEVEL SPONSORS

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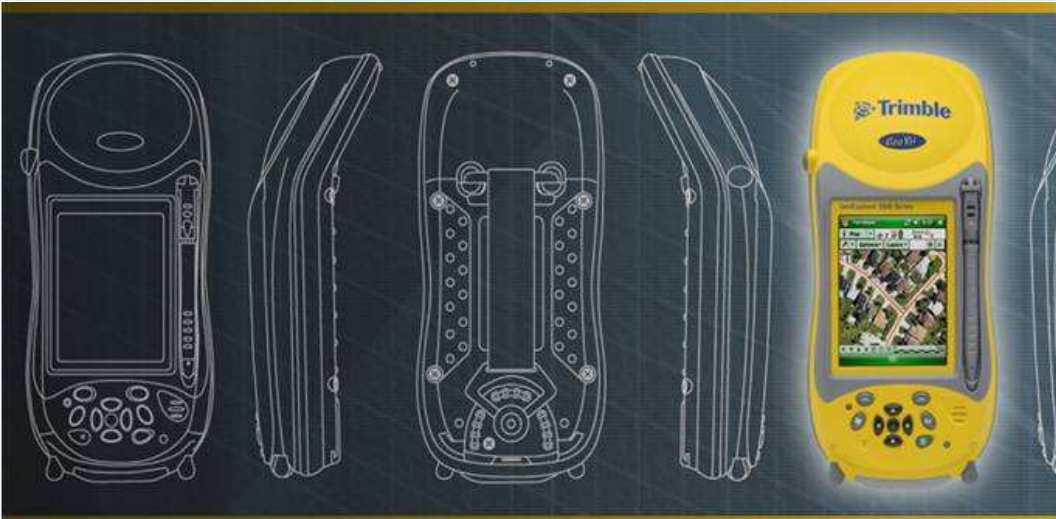
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Your 2009 OK SCAUG Steering Committee



Chair and Regional Oklahoma Representative – Charles Brady III

Charles works as the GIS Coordinator for the City of Ardmore, OK. He studied GIS at East Central University and has been working with GIS software for over 12 years. His favorite thing about GIS is providing GIS resources to be used in real world situations



Conference Coordinator – Katy Rich

Katy works for the Oklahoma State Department of Health as the GIS Coordinator. She graduated from the University of Oklahoma with a Master of Arts in Geography with specialization in GIS and has worked with GIS for 5 years. Her favorite thing about GIS is its usefulness as a tool for countless industries and professions. She loves sharing her excitement about GIS with others.



Assistant Conference Coordinator/Membership Coordinator – Carrie Landgraf

Carrie works as the GIS Director for The Benham Companies, LLC. Carrie received a Master's degree in Geography from The University of Alabama and has been working with GIS software for 13 years! Her favorite thing about GIS is that it is dynamic and interdisciplinary. It is wonderful to have a career that constantly presents fresh challenges and provides new opportunities for learning.



Vendor Coordinator – Darryl S. Williams

Darryl is a Cartographer with 31 years of service with the U.S. Geological Survey. Darryl currently works in the USGS, NSDI-Partnership Office as the USGS Geospatial Liaison for Oklahoma. During his many years of service with USGS, Darryl has worked in a variety of positions in mapping and geospatial operations, including developing partnership agreements that leverage USGS funds and resources with those of other agencies at all levels of government, academia, and the private sector to develop and make available geospatial data to the GIS community.



User Group Meeting Coordinator – Sohail Hasanjee

Sohail works as the GIS Manager for the Oklahoma Department of Commerce. He studied GIS at the University of Oklahoma while pursuing a graduate degree in Regional and City Planning and has been working with GIS software for 14 years. His favorite thing about GIS is that it is graphic and is worth a million words.

Your 2009 OK SCAUG Steering Committee



Outreach Coordinator – Pamela D. Jurney

Pamela works as the GIS Manager for Red Plains Professional, a civil engineering firm that is Indian and locally owned. She received a Master's in Geography at Oklahoma State University and has been working with GIS software for 4+ years. Her favorite thing about GIS is its story-telling ability. It takes the complex and displays it a seemingly simple form.



Publications – Clifford Montgomery

Clifford works as the GIS Coordinator/Analyst for the City of Broken Arrow, where he started their GIS program. He received a Bachelor's Degree from Northeastern State University. He was attracted to GIS because after completing a project in CAD he would have to go back and do a materials list for the project, but in GIS the two functions were integrated. After moving to GIS he hasn't looked back and is glad he moved.



Past Chair – Chuck Sloan

Chuck has been a member of SCAUG since 2003 and served on the Oklahoma SCAUG chapter since 2006. He received both his Bachelors and Masters degrees in Geography from Oklahoma State University. Working in the Oil and Natural Gas industry since 2004, he has worked for a number of oil and gas companies in the land department and pipeline/facilities department helping to show the benefits of GIS to the petroleum industry. He has recently started his own GIS consulting, catering to the oil and gas industry in Oklahoma.



Regional SCAUG Secretary – Shellie Willoughby

Shellie works as a GIS Specialist for the Oklahoma Conservation Commission and also organizes the activities and meetings of the Oklahoma Geographic Information Council. She received her Master's degree in Geography from Oklahoma State University and has been working with GIS for 12 years. Her favorite thing about GIS is finding patterns and relationships in data.



ESRI Representative – Stacia Canaday

Stacia works as a Training Consultant for ESRI. She studied GIS at the University of Oklahoma and has been working with GIS for 11 years. Her favorite thing about GIS is junction subsumption because it's fun to say.

THANK YOU TO THIS YEAR'S SCHOLARSHIP SPONSORS

Due to the generosity of our sponsors, this year Oklahoma SCAUG and Regional SCAUG were able to offer 7 scholarships of \$500 each to Oklahoma college students studying geospatial sciences! The scholarship recipients will be announced during the opening session of the conference.



SURVEYING • MAPPING • GIS • GPS

KEYNOTE ADDRESS

GIS and Oklahoma Wind – The Zephyr Box Project

**Dr. Stephen Stadler, Oklahoma Wind Power Initiative
and Oklahoma State University**



The Oklahoma Wind Power Initiative (OWPI) is a project run jointly by the University of Oklahoma and Oklahoma State University and is the U.S. Department of Energy's state wind working group for Oklahoma. In existence for a decade, OWPI has modeled the wind resource of the state and used GIS tools to help explain the resource to wind developers, state agencies, and the public.

In the fall of 2008 we won a competitive State of Oklahoma Economic Development Generating Excellence (EDGE) award. Part of this award will be used to develop ZephyrBox, a Web-based toolkit based on the ArcGIS Server platform. This toolkit is being readied for commercial sale in 2011 and will include set base maps, including our models of the Oklahoma resource. However, the base maps will be supplemented by on-the-fly merging of data layers at the user's discretion. We are implementing applications from economic (e.g. transportation costs), environmental (e.g. environmentally sensitive areas), and social (e.g. census data) realms. A "summary" function is a site rating system allowing the user to weight various considerations and blend data layers to help decide upon the best candidate development sites.

About the presenter:

Dr. Stadler is a professor of Geography at Oklahoma State University and has been at the university since 1980. Now he also serves as the State Geographer of Oklahoma. His Ph.D. is in Physical Geography and he specializes in applied climatology. His research has emphasized interactions between the atmosphere and society and the atmosphere and landscape. Also in progress is a co-authored applied climatology book for Prentice-Hall. He has been a member of the Steering Committee of the Oklahoma Mesonet since its inception. He is knowledgeable about uses, limitations, and analyses of Mesonet data. In particular, he has had considerable experience in the spatial interpolation of Mesonet data.

USER PRESENTATIONS

10:15 – 10:45

Track 1:

GeoCIP® – A History & Evolution of a State-Wide GIS-Based Infrastructure Program

Mike Sexton, Oklahoma Department of Commerce

In 1992, as a result of State House Bill 2375, the “State Capital Improvement Planning Act”, the Oklahoma Department of Commerce needed a way to estimate costs of capital asset improvement needs across the state. To do so, Commerce developed a program that assists local governments in assessing the condition of their capital assets & planning for future needs. Through partnerships with public & private agencies, GIS technology was incorporated into the program creating GeoCIP®. Over its 17 year life, all aspects of the GeoCIP® Program have evolved. This team presentation will cover the inception of the program, adjusting to changes in GIS technology over the life of the program and issues in managing a state-wide, multi-partner GIS program.

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Track 2:

Stormwater Data Collection and Watershed Basin Creation

Kathy H. Spivey and April D. Rankin, City of Midwest City

The City of Midwest City Stormwater Quality Division and GIS Division has finished a year-long effort to GPS the entire stormwater system in the City of Midwest City. In addition, watershed basins and subbasins were defined using existing contour data and the newly collected field data. The City is in the process of creating a web-based application for use by the Stormwater Quality Division and the Fire Department to analyze the effect of a hazardous spill or dump on the City's waterways and stormwater system and the determine the best locations for barriers to be erected to control the flow of the any contaminant release during such an event. The presentation will discuss the data collection methods, data cleanup procedures and criteria, basin creation methodology, and application requirements, development and status.

USER PRESENTATIONS

10:15 – 10:45

Track 3:

Building National Elevation Datasets

Ian Seeton, Intermap Technologies, Inc

High resolution elevation data are an essential component for many applications including line of hydrological, engineering pre-planning, 3D Visualization, as well as for orthorectifying high-resolution satellite and aerial imagery and conducting GIS analyses. Among the various options for collecting digital elevation data is IFSAR (Interferometric Synthetic Aperture Radar) a radar based technology capable of producing elevation products with vertical accuracies of less than 1m RMSE (root mean square error). IFSAR is a proven, reliable and cost-effective method for capturing wide area, high precision elevation data sets. This presentation will focus on the use of Intermap's airborne single pass IFSAR technology to build a national elevation dataset for the US, including background on the technology used, reasons for using this approach, and the benefits and applications of the data.

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Track 4:

Using Digital National Wetlands Inventory Maps to Estimate Changes in Wetland Acreage

Chris DuBois, OK Conservation Commission

The Oklahoma Conservation Commission (OCC) is charged by state statute with development and implementation of Oklahoma's Wetlands Strategy. A pervading objective of this strategy is to monitor wetland resources to determine compliance with "no net loss" goals. Although a national imperative, "no net loss" determinations have proven difficult to achieve and a standardized national methodology is not available. To this end, the OCC in conjunction with the Oklahoma Water Resources Board (OWRB) and Oklahoma State University (OSU) have digitized hard copies of the U.S. Fish and Wildlife Service's National Wetland Inventory (NWI) maps to create an Oklahoma specific interactive wetland mapping system, which will provide increased analytical opportunities for the public as well as the private sectors. In addition, OCC is utilizing the digital NWI layer to develop a probabilistic approach to compare current and historic wetland coverage to determine estimates of net gain/loss of wetland resources. This will be done by looking at probabilistically selected, 4 square mile plots and using the digital NWI data as a baseline to compare to current digital information, such as aerial photographs. The difference, accounting for mapping errors, would be attributed to wetlands gain or loss. This determination technique could be used statewide and improved as additional digital information becomes available.

USER PRESENTATIONS

10:50 – 11:20

Track 1:

GeoCIP® – Creating GIS Training to Standardize Project Deliverables

Scott March, OU Center for Spatial Analysis

GeoCIP® – Data Conversion & Standardization of Independent Layers into a Geodatabase

Trung Tran, OU Center for Spatial Analysis

To date, the data in the GeoCIP® Program exists as many individual databases georeferenced and structured only to the layers within that particular database. There is some regional consistency in databases but not at the state-wide level. To create a successful geodatabase, it is necessary for all databases to have the same structure. This team presentation will cover issues in developing training workshops for GeoCIP® Program partners to develop the GIS techniques and procedures necessary in creating a standardized dataset for each project in the new GeoCIP® geodatabase. The team will also cover technical issues in importing existing GIS data into the new GeoCIP® geodatabase. Discussions will include examples and challenges of creating standardized state-wide geodatabase for assess inventory.

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Track 2:

Utilizing GIS Mapping in Emergency Management during the February 10, 2009 Edmond, Oklahoma Tornado

Ian M. Peebles and Sara Cobb, City of Edmond

On February 10, 2009, an EF2 tornado struck the northwest portion of the City of Edmond. The aftermath of the tornado resulted in a northeastern track of damage through neighborhood properties and electrical infrastructure. Following the tornado, departments within the City of Edmond including Emergency Management and Code Enforcement worked in conjunction with volunteers from the Civil Air Patrol to form a Damage Assessment Team. Edmond's GIS division produced base maps to assist in coordinating areas to assess properties and infrastructure that sustained damage. The Damage Assessment Team used structural damage assessment forms to conduct a survey to record the location and characteristics of property damage. The information was then processed, and the tornado track and the severity of the damage were mapped all within the same day. This presentation explores how GIS technology within the City of Edmond was utilized and distributed to agencies during the February 10, 2009 tornado disaster which resulted in a quick FEMA survey and an expedited Emergency Declaration by the President.

USER PRESENTATIONS

10:50 – 11:20

Track 3:

A Picture is Equal to a Thousand Words: Use of GPS Enabled Cameras in GIS/GPS Mapping

Ashok Wadwani, Applied Field Data Systems, Inc.

GIS/GPS mapping professionals realize the importance of having a picture associated with the location and attribute information. In fact the use of digital camera in conjunction with GPS data collection is very common. However the process of associating pictures with other attribute data in GIS has been very cumbersome. With the introduction of digital camera with integrated GPS , compass module and associated software, the process of combining photographs with GPS and attribute data in GIS has become very easy. The presentation will cover the new hardware and software for mapping professionals.

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Track 4:

Using Helicopter Electro-Magnetic Survey Maps and Cross-sections and Aerial Photos to Located and Differentiate Salinity Pollution Sources

Patricia Billingsley, OK Corporation Commission

In a four county project area in Southern Oklahoma with extensive old oilfield production, the Corporation Commission first had all streams sampled to define the areas in which salinity sources were adversely affecting streams. USGS-developed Helicopter Electro-Magnetic Survey techniques were used in a portion of the defined areas to help locate the salinity sources by depth and type, and to map related aquifer pollution. We have now added historical aerial photos from 1941 to the 1970s to help define the sources of stream and groundwater pollution, when they occurred and by whom. This presentation will:

- Outline the HEM methods used;
- Show the maps and cross-sections made from the HEM data;
- Illustrate likely aquifer pollution areas; and
- Demonstrate how we use the maps, cross-sections and historic aerial photos to infer the salinity sources.

USER PRESENTATIONS

11:25 – 11:55

Track 1:

GeoCIP® – Developing a Geodatabase Model for a State-Wide GIS-Based Infrastructure Assessment & Improvement Planning Program

Semiha Caliskan, Peter Camilli, OU Center for Spatial Analysis

The GeoCIP® program has a standardized toolkit or guide to assist in the infrastructure inventory and mapping process. The data collected focuses mainly on infrastructure assessment and infrastructure improvement planning and not the day-to-day asset maintenance. In the development of the new GeoCIP® geodatabase schema, various resources were used to create a more detailed model offering additional information for the assessment and planning processes. This team presentation will cover technical issues of creating a state-wide, geodatabase model.

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Track 2:

Applications of GIS and Stormwater Engineering

Chris Hill, Meshek & Associates

Engineering and GIS have historically existed as two distinct disciplines. For years, engineering designs and practices have become an integral part of the development of our municipal infrastructure. GIS has existed for several years as a tool for managing spatial data and has found applications in almost any working environment. Evolutions of current GIS technology and age-old engineering practices have developed a niche for today's GIS user and the modern engineer. One of the particular fields of engineering that has benefited from this relationship is that of water resource, or stormwater, engineering. A common endeavor shared among municipalities in Oklahoma is that of managing local flooding and drainage problems. Stormwater engineering works to solve these drainage problems via detailed calculations and modeling. When GIS is implemented into the engineering process, it provides an excellent tool for developing base data, managing information, and showcasing results from engineering studies. Everything ranging from accurate floodplain mapping to the cataloging of drainage structures may be used to animate the engineering work behind the scenes. Using GIS, any engineering study becomes a living document that may be updated and used by other municipal departments outside of engineering. This presentation will provide examples of how GIS and stormwater engineering may work together, and hopefully give insight into the utilization of GIS technology to all fields of engineering.

USER PRESENTATIONS

11:25 – 11:55

Track 3:

Determining the Most Efficient Locations for Solar Photovoltaic Cells in the State of Oklahoma

Lacey Evans and Lui Lu, University of Oklahoma

Solar energy is the most abundant form of renewable energy on earth. The best way to utilize and conserve solar energy is through solar photovoltaic cells. With the current issue of climate change and high energy costs, domestic implementation of solar panels could be the most efficient solution. This gives rise to the question, where is the best location for solar panels? This project will answer the question as it pertains to the state of Oklahoma. Radiation instruments and data streams from the Oklahoma Mesonet will be analyzed. Next, the average monthly and annual incoming solar radiation will be calculated for the given Mesonet sites. The locations with the highest amounts of incoming radiation will be determined. Using Geographic Information Systems (GIS) software, these sites will be mapped out and contoured from highest to lowest incoming solar radiation. Then vast bodies of water, highly forested areas, and highways can be masked out. What will be left is a map with the suggested best realistic locations for solar panels in Oklahoma.

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Track 4:

Using Geologic Data and GIS to Make a Base of Treatable Water Maps that Project Fresh Water Aquifers

Jeff Myers, OK Corporation Commission

Oil and Gas wells are required to case wells from the surface to the base of treatable water (BTW), approximately 10,000 ppm total dissolved solids (TDS), in order to protect fresh water aquifers from oil & gas, saline produced water, and drilling/fracing fluids. During the 1980s the Corporation Commission had a series of BTW maps made, which it used to tell oil & gas drillers how much surface casing needed to be set in each well being drilled. Some of these maps have been found to have inaccuracies due to the widely spaced data then available and the mapping techniques available. Using the maps and properly interpolating between the points has occasionally been an issue, and these old paper maps could not be made widely available for use. The Commission is in the process of making new up to date maps. These maps have data picked by an experienced geologist, with many more data points per county used. GIS software including Spatial Analyst has been used to contour and present the maps. 30 counties have been re-mapped as of May 2009. The Commission also hopes to make these maps available to drillers, so that they can pre-plan their well drilling. One other possible use for these maps would be as part of mapping the thickness and extent of marginal waters, 3,000 to 10,000 TDS, that are located below fresh drinking water aquifers. Marginal waters could be used by industry, perhaps in some areas lessening the demand on the fresher waters.

POSTER PRESENTATIONS

A Spatially-Based Planning Tool Designed to Reduce Negative Effects of Development on the Lesser Prairie-Chicken (*Tympanuchus pallidicinctus*) in Oklahoma

Russ Horton and Greg Summers

The Lesser Prairie-Chicken (LEPC) model is a conceptual spatial model that ranks land relative to its importance for LEPC conservation. The LEPC model produces a spatial grid spanning the historical range of the LEPC in Oklahoma in which each 30m x 30m pixel is numerically ranked (1 to 8). The higher the rank, the more valuable that pixel is to the LEPC. Ranks are determined by comparing each pixel in the grid against a set of eight criteria addressing LEPC occurrence, habitat requirements and threats. Each rank value is associated with a dollar value reflecting the cost of replacing that land if it were destroyed or degraded. The model can be used to evaluate any type of potentially detrimental development (e.g. wind energy farm, road construction, oil and gas wells, transmission line).

City of Edmond Electric Department - Incorporating GPS Technology to Support End User Applications

Ian Peebles and Mike Warren, City of Edmond

The City of Edmond Electric Department is consistently challenged with maintaining a dynamic electric infrastructure to support applications used on a daily basis. Since 1997, the Electric Department has implemented GPS technology to gather positions of electrical equipment that comprise the distribution system. The electrical data model is updated frequently and is currently stored in ESRI's spatial database engine (SDE). Applications such as desktop mapping, work order system and Outage Manage System (OMS) require highly accurate spatial data. The use of GPS technology has proven to be a reliable data collection method that has had a significant impact in improving the accuracy and completeness of base maps, system reliability, streamlining operations, and customer service. Compiling a versatile electric dataset is possible by following a structured workflow. This poster explores the workflow of how GPS technology is utilized by Electric Department personnel and how the data is disseminated.

POSTER PRESENTATIONS

CNG Fueling Station Locations within the State of Oklahoma

Thomas Tollett, Chesapeake Energy

This map was created from data collected by the Association of Central Oklahoma Governments' "Clean Skies Initiative" to illustrate the current locations of Compressed Natural Gas (CNG) fueling stations in the State of Oklahoma, highlighting the two areas of greatest population density; Oklahoma City & Tulsa. The following is additional information on the use of CNG as an Alternative Transportation Fuel.

Why CNG Now? The importance of finding a solution to the nation's current economic and energy challenges is at an all-time high. Natural gas is an American energy answer.

When compressed into a transportation fuel, it offers the same benefits of gasoline- and diesel-power, but provides more advantages as a clean, affordable and American fuel that can help create U.S. jobs and lessen our country's dependence on foreign oil.

CNG Is Clean Emissions from a typical CNG vehicle are much lower than those from gasoline-powered vehicles. For example, the natural gas-powered Honda Civic GX is recognized by the U.S. EPA as the cleanest commercially available, internal-combustion vehicle. The Civic GX is rated by the California Air Resources Board as meeting the very stringent AT-PZEV standard. Per unit of energy, natural gas contains less carbon than any other fossil fuel, and thus produces lower carbon dioxide (CO₂) emissions per vehicle mile traveled. A recent study done on behalf of the California Energy Commission concludes that CNG vehicles produce up to 29% less greenhouse gas emissions than comparable gasoline vehicles and up to 22% less than comparable diesel vehicles. The bottom line is that natural gas-powered vehicles are dramatically better for the environment than gasoline-powered vehicles.

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Cooperation and Accomplishments in the Face of Natural Disasters

Kathy H. Spivey, Billy D. Harless and Terri L. Craft, City of Midwest City

The City of Midwest City has faced its share of natural disasters during the past decade - the May 3, 1999 tornado that tore through the southwestern part of the City, the December 2007 ice storm that caused widespread power outage and tree damage throughout the City, and the April 9, 2009 wildfires that burned land and houses across eastern Midwest City and on through the City of Choctaw. These three terrible events had some very positive outcomes that may not have been obvious in the aftermath of each disaster, but are contributing to Midwest City's growth, citizen safety and service - cooperation between local and federal governments, citizens and businesses to assess and rebuild the community; opportunities to improve the quality of life in the City after the disaster and into the City's future; and improved readiness to handle future disasters. This poster will visually show the impacts of these events on the City of Midwest City.

POSTER PRESENTATIONS

GIS Analysis to Support Rezoning Efforts in the City of Midwest City

Kathy H. Spivey and Anais Starr, City of Midwest City

The City of Midwest City is in the process of updating the City's zoning ordinance and zoning map. To help determine how parcels of land may be rezoned to meet the future development goals of the City spelled out in the City's Comprehensive Plan, GIS was used to overlay various data and analyze relationships to assign new zoning districts to land parcels. Criteria included in the analyses are the degree of the slope of the land, amount of significant tree canopy, lot size, proximity of the land to water lines, proximity of the land to sewer lines, and presence of the land in the floodplain. This poster will present our analysis and resulting zoning map to be included with the new zoning ordinance of the City of Midwest City.

Black and White – Mapping the Federal Standard

Tracy Scopel and Carrie Landgraf, The Benham Companies, LLC

In order to comply with Federal Energy Regulatory Commission (FERC) requirements, maps must be provided in a very specific TIF format in order to minimize file size and facilitate reproduction. Map image files need to be in true black and white (no grayscale) and under 1 MB! This is not such an easy feat when, to meet scale requirements, mapping products are 36" x 24" or larger in size. This poster explains how to:

- create a map in which different types of data are easily distinguishable in black and white
 - retain color layers in a map that will ultimately be exported as black and white so that production staff can easily differentiate between layers without zooming in
 - decipher TIF export format language to create a small black and white file, even for large map documents
-

Emergency Grid Map at Tulsa International Airport

Janelle Williams, Tulsa Airport Authority

The grid map is used by airport dispatch to quickly identify the exact area where airport emergency personnel or non-airport emergency personnel are needed. The map includes the location of fire hydrants and gates that are beneficial for the emergency personnel to locate.

POSTER PRESENTATIONS

The GeoCIP Data Standardization Process: A Three-Level and Pair-Matching Approach
Trung Tran, Peter Camilli, Semiha Caliskan, May Yuan, Mike Sexton, Kathryn Hines, Scott March, Center for Spatial Analysis and OK Dept of Commerce

GeoCIP(r) was developed by the Oklahoma Department of Commerce as an effort to standardize the asset inventory and assessment processes. The latest outcome of this 17 year effort is the GeoCIP(r) geodatabase developed from a standardized data model. However, to date, the asset data have been collected and managed in a less standardized form, such as a collection of shapefiles and Excel tables. Therefore, one of the big challenges of this project was to answer the question of how to transfer data from a less standardized format to a more standardized format? The strict requirement for this process is that no data element is missed during the transferring process. Therefore, a three-level, pair-matching approach was applied as an answer to this challenging question. One advantage of this approach is that it ensures that the standardization is considered at all three levels of the database: feature class level, record level, and value level. The other advantage is that it allows automating the transferring process while incorporating human knowledge about the existing situation of the data.

Monitoring and Forecasting for Agricultural Production and Biofuel Feedstock
Chandrashekhar Biradar, Xiangming Xiao, Joshua Kalfas and Diana Vanegas Beltran
Center for Spatial Analysis, College of Atmospheric and Geographic Sciences;
Department of Botany and Microbiology, College of Arts and Sciences, University of Oklahoma

Information on the area and production of crops are needed for food security and trade. We have developed RS/GIS based approaches to map and monitor cropping intensity (number of crops per year in a unit area), crop calendar, and irrigation. The Vegetation Photosynthesis Model (VPM) has been developed to estimate daily to annual gross and net primary production of crops. The VPM model uses satellite images (e.g., MODIS) and climate data (air temperature, photosynthetically active radiation) as input. The VPM-predicted gross primary production of crops are evaluated with data from CO₂ eddy flux tower sites, where high frequency of CO₂, energy and water fluxes are continuously measured and reported at half-hourly interval.

The information of the spatial distribution and temporal (seasonal and interannual) dynamics of agricultural biofuel feedstock are critically needed for developing effective production and harvest plans for the biofuel industry. We started to develop a satellite-based approach for tracking seasonal dynamics of agricultural feedstock. Our long-term goal is to establish a monitoring and information system of agricultural biofuel feedstock, which would provide support for an optimized harvest plan of biofuel feedstock, and ecological and environmental assessment.

POSTER PRESENTATIONS

Application of Geospatial Technology for Ecology and Epidemiology of Highly Pathogenic Avian Influenza (H5N1)

Xiangming Xiao¹, Chandrashekhara Biradar¹, Delong Zhao¹, John Takekawa², Diann Prosser², Scott Newman³, Marius Gilbert⁴, Fumin Lei⁵, Yin Liu⁶, Weitao Ji⁷, and Jan Slingenberg³

¹University of Oklahoma, ²USGS, ³FAO/UN, Italy, ⁴Free University of Brussels, Belgium, ⁵Institute of Zoology, China, ⁶Jiangxi Normal University, China, ⁷Poyang Lake, China

Since 2003 highly pathogenic avian influenza H5N1 outbreaks have spread over many countries in Asia, Europe and Africa, and there is a need to map, track and predict its spatial and temporal dynamics. Here we briefly introduce research activities that focus on ecology-based risk assessment and early warning of highly pathogenic avian influenza (H5N1). We have integrated in-situ observations, geospatial technology and epidemiological models to understand and forecast the dynamics and transmission of H5N1 avian influenza in Asia. The research activities range from detailed process study at Poyang Lake, China to integrated modeling at continental scale. Its overall goal is threefold: (a) to better understand the ecology of HPAI in Asia; (b) to develop a data-model integration system that could identify “hot spots” (location-varying risk) and “hot times” (time-varying risk) of HPAI in Asia, and (c) to provide near-real-time ecology-based risk assessment and early warning of HPAI in 2007-2009 for Asia. Specifically, it will (1) provide updated and improved geospatial datasets of HPAI-relevant ecological factors, including migration flyways and timing of wild waterfowls, agricultural systems (cropping intensity, crop calendar, and irrigation), seasonality of wetlands, and biophysical variables (e.g., land surface temperature); (2) quantify the relationships between HPAI and ecological variables; (3) develop a GIS-based epidemiological model, (4) develop an internet-based geospatial (RS/GIS) web system (primarily through linking Google Earth with research-oriented websites, e.g., www.geohealth.ou.edu for distributed mapping and timely distribution of HPAI-relevant information.

POSTER PRESENTATIONS

Using GIS to Investigate Relationships between Lightning and Storm Structure

Sarah M. Glenn, School of Meteorology and Center for Spatial Analysis

The study applied 3D GIS tools to visualize lightning data collected by the Oklahoma Lightning Mapping Array (OKLMA) network of 10 VHF receiving stations in central Oklahoma. The OKLMA network captures 3D coordinates of small-scale electromagnetic charges in seconds to examine lightning discharges within a radius of 75 km. Using the temporal data for each charge point, the study created animations to expose more detail of the lightning flashes by slowing down the time of each event, while keeping time proportions between points constant.

Moreover, the study overlapped the OKLMA data with NEXRAD WSR-88D Level II products to contextualize the lightning flashes within a thunderstorm occurring near Norman, Okla., around 01:00 UTC on 10 July 2007. Like OKLMA data, NEXRAD volume scans were displayed in various elevation angles. By overlapping the NEXRAD products and the lightning flashes, the study explored possible relationships between storm structure and lightning development.

Besides NEXRAD WSR-88D, this storm was captured on high-definition video, and several cloud-to-ground lightning flashes (CG) are visible. One CG flash in particular came completely outside the updraft, providing an opportunity for a visual observation. This CG flash was also recorded in video and still imagery. Follow-up research will compare the OKLMA lightning charges with flashes captured by the high-speed camera images to draw insights into the development of lightning strikes. This research may also help to better understand what characteristics or precursors a thunderstorm may exhibit to aid in the lightning warning process.

PANEL DISCUSSIONS

Parcel Data

Panel Members: Troy Frazier, Wade Patterson, Chris Mask

Since 2000, **Troy Frazier** has worked for the Oklahoma Tax Commission as the staff cartographer. This includes supporting the county assessors' mapping efforts. Troy provides the assessors free mapping data, viewing software, software training and remote and on-site software support. From 1995 through 1997, Troy worked for Noble County mapping the county and producing the Noble County Rural and Noble County City platbooks. During 1997 and 1998, Troy worked for the Oklahoma Cadastral Library mapping a large part of Logan County; creating school district maps for districts in several states; and providing training and contract mapping for several Oklahoma county assessors. From 1998 through 2000, Troy was chief appraiser for Garfield County supervising mapping, producing the Garfield County platbook, and receiving three ESRI sponsored Livable Communities Grants. In 2009, Troy Frazier received the designation of Cadastral Mapping Specialist from the International Association of Assessing Officers.

Wade Patterson has been the Garfield County Assessor since 1997. Prior to that, he worked at the Oklahoma Tax Commission, Ad Valorem Division for 6 years and at the Property Valuation Group (a private appraisal company) for 6 years. He attended Northeastern Oklahoma A&M College and Missouri Southern State College. He is president of the County Assessor's Association of Oklahoma and an appointed member of the Oklahoma State Geographic Information Council.

Chris Mask is the GIS manager with Visual Lease Services, Inc. In this role, Chris manages a team providing all aspects of the oil and gas appraisal inventory. Chris is a qualified Cartographer and holds a B.S. from East Central University of Oklahoma. Chris is no stranger to GIS and mapping, having spent ten years as a cartographer and a GIS manager for private industry which taught him the importance of professional courtesy and responsibility. Chris has more than 14 years of mapping experience in GIS. Before joining Visual Lease Services, Inc. in 1999, Chris worked for years in numerous roles for a diverse range of organizations, including private industry, local government, and universities. Chris now helps local government in the appraisal of oil and gas industry. Drawing on many years experience in GIS and GPS, Chris now focuses mainly on project management and new technology solutions. Passionate about GIS and its possibilities, Chris provides services that help government and industry.

PANEL DISCUSSIONS

ArcGIS Server Implementations

Panel Members: Clifford Montgomery, David Wheelock, Katy Rich

David Wheelock is the lead GIS specialist at the Oklahoma Department of Agriculture, Food, and Forestry. He graduated from OU with a BBS in MIS in 1987, but also with a love of geography and science and environmental issues, and knowledge of graphic design from designing posters and advertising for a campus film group. David went to work for ODAFF in 1988 and began working with GIS in 1989. As the agency's sole GIS specialist until early this year he has gained an unusually wide variety of GIS experience working for an agency that, by his assertion, has a wider variety of missions and potential GIS applications than any other state agency. He has worked with many subject areas, including environmental regulation, emergency response, forest management, pesticide and pest management, invasive organism tracking, market development, groundwater monitoring and protection and even social service, and uses conventional mapping, 3D modeling and Internet mapping and other skills to accomplish these missions.

Katy Rich is the GIS Coordinator for the Oklahoma State Department of Health (OSDH) and also works with health informatics initiatives through the OSDH Center for Health Statistics, Health Care Information Division. She graduated from OU with a Master of Arts degree in Geography where she specialized in GIS. At the health department she is working towards establishing enterprise-level GIS software and applications to support their growing GIS user base among epidemiologists, statisticians and program managers. Additionally, she instructs staff on GIS software use, develops internal GIS datasets, creates maps and advises on mapping and spatial analysis projects. During the last 2 years, Katy has served as a GIS advisor for the statewide implementation of WebEOC, a web-based emergency management software that uses an ArcGIS Server-based web mapping application.

Clifford Montgomery works as the GIS Coordinator/Analyst for the City of Broken Arrow, Oklahoma, where he started their GIS program. He received a Bachelor's Degree from Northeastern State University, worked as a civil technician for W.R. Holway and Associates, and then went to work for the City of Broken Arrow as an engineering technician. His reasoning for moving from engineering tech to GIS was because after completing a project in CAD he would have to go back and do a materials list for the project, but in GIS the two functions were integrated. After moving to GIS he hasn't looked back and is glad he moved.

PANEL DISCUSSIONS

Emergency Management GIS

Panel Members: James Allen, Franklin Barnes, Alicia Kongyan Nicely

James Allen has been the GIS Coordinator for Carter County since 2007. He received his Bachelor of Science degree in Cartography with a minor in computer programming from East Central University in 2005. After graduation, he served as an intern with the City of Ardmore and then as the GIS Tech for the Carter County E911 office. In his current position he works closely with both the E911 and Assessor's offices coordinating all aspects of mapping for Carter County. His mapping has been greatly beneficial in the two most recent disasters in Carter County, the tornado that hit Lone Grove in February of 2009 and the wildfires that destroyed over 100 structures in northwestern Carter County in April of 2009.

Franklin N. Barnes has over 30 years of law enforcement and public safety experience with two law enforcement agencies in two states. Currently he is the Oklahoma City Emergency Manager. During his 30 plus year career he has gone from having to develop and draw his own maps of rural Washoe County, NV to having access to GIS maps from the mobile digital computer in his emergency vehicle. He is an Adjunct Professor at Oklahoma State University – Oklahoma City and part-time instructor for OSU Fire Service Training. He received his Associate of Science Degree from Moorpark College, Moorpark, California and his Bachelor of Arts Degree from the University of Nevada - Reno. He is a recipient of the J. Stannard Baker Award for Outstanding Achievements in Highway Safety, Washoe County Sheriff's Office Certificate of Meritorious Service, and Oklahoma City Police Department Meritorious Service Award.

Alicia Kongyan Nicely works at the 9-1-1 Association of Central Oklahoma Governments (9-1-1 ACOG) as the 9-1-1 GIS Manager. She had a M. S. degree from Baylor University in Environmental Studies with a focus on GIS applications. She has also worked for the GIS Lab at Texas Parks & Wildlife Department, the IT Department at Brazos River Authority, and the Transportation Division at the Association of Central Oklahoma Governments (ACOG). Her job tasks have included complex geoprocessing, mapping, geodatabase management, GIS web application development, and installation and maintenance of GIS desktop and server products. She is keen to the development and management of ArcIMS web applications and ArcSDE geodatabase and servers.

GAME

Central Oklahoma Red Dirt Monopoly

Game Masters: Andrea Weckmueller-Behringer, Daniel Fazekas, Darla Hugaboom, John Sharp, Kara Chiodo, Meredith Williams, Pong Wu, Ryan Billings , ACOG

As a part of the public participation process, ACOG staff has localized a transportation planning game, called **Red Dirt Monopoly**. The intent of the game is to educate Central Oklahomans about the transportation planning process, consensus building and planning within a budget, while gathering spatial information tied to desired transportation improvements. The public's feedback on wants and needs will be considered in the development of the Encompass 2035 long-range transportation plan.

Each game is designed for three to six players (multiple games can be played at the same time – depending on the size of the overall audience), and the game is played with a toolkit that includes game pieces, markers, a cost sheet, and a game board, which is essentially a large map of the Central Oklahoma region. Players are given monopoly money at the beginning of the game, and then have to work together to develop a planning strategy that meets the needs of the other players. The object of the game is to spend (allocate) all of the money on transportation improvement and maintenance projects.

Funding can be allocated to several mode choices, such as pedestrian and biking trails, new streets and highways, passenger rail and bus rapid transit. Park and ride lots, transit centers and enhancement projects are part of the menu, too. A portion of the funding must also be spent on maintenance of the current and future system. When a player or team wants to spend money, they forward the funding to the game master, who cuts ribbons and strings, or provides game pieces that are then attached directly to the map. After the game, the information contained on the maps will be digitized and inventoried to allow consideration of the public's input into the development of the "real" plan.

ACOG staff is making a Red Dirt Monopoly session available for interested SCAUG conference attendees. (It takes approximately one hour to play the game.)

ESRI TECHNICAL SESSIONS

ESRI Technical Session 1 – Leveraging Your GIS Content

Karen Lizcano, ESRI

Watch technical demonstrations from the 2009 UC Plenary Session, including ArcGIS 9.3.1 and the road ahead. Learn how to create fast maps with ArcGIS 9.3.1, access online content as well as share and collaborate with your peers using new desktop tools and the new ArcGIS Online.

ESRI Technical Session 2 – “The Road Ahead”: Desktop 9.4 Improvements

Karen Lizcano, ESRI

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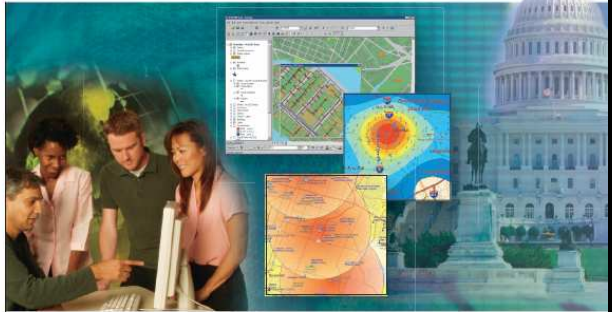
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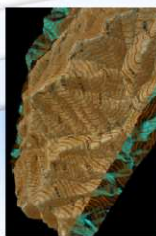
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Description	Classification	Credit	Credits Earned
MARPLOT for Emergency Response (4 hours)	EDU	0.1	_____
Desktop Geocoding (4 hours)	EDU	0.1	_____
GIS Technology Tsunami (8 hours)	EDU	0.2	_____
Hands on Open Source GIS (8 hours)	EDU	0.2	_____

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SCAUG CONFERENCE (8 hour)

Description	Classification	Credit	Credits Earned
Attendee	EDU	0.1	_____
Presenter	CON	1.0	_____
Poster Presenter	CON	1.0	_____
Poster Award Winner	CON	2.0	_____
OK SCAUG Scholarship Winner	CON	2.0	_____

2 Day Training (16 hour)

Description	Classification	Credit	Credits Earned
Creating & Editing Parcels with ArcGIS Desktop	EDU	0.4	_____
Intro to ArcGIS Desktop	EDU	0.4	_____

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3 Day Training (24 Hour)

Description	Classification	Credit	Credits Earned
Data Management in the Multiuser Geodatabase	EDU	0.6	_____

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2009

- Vendor Area
- Registration
- Poster Gallery
- Breakout Rooms
- Buffet
- Elevator
- Restroom
- Main Hall
- Stage

Main Conference Hall (MCH)

Entrance

Stairs

Registration

111 / 112

109 / 110

Lower Level

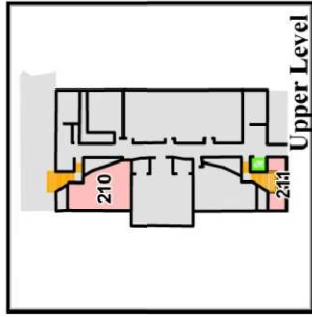
Rotunda A

Buffet



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Upper Level

MNTC South Penn Campus

