2018 TNGIC Presentations

Day Wednesday   **Time** 1:30 PM - 2:00 PM   **Room** B

Title Have Your Map and Carry it too.

Author 1   Dwayne Coley   **Author 2**

Organization   Tipton County Public Works

Presentation Abstract

In this presentation I will be showing how we set up CarryMap and use it in the field by collecting data, generate Maps and Work Order.   Also speaking on how this has increased our communication and reduced cost.

Presenter Biography

I've been with TCPW for 15 years and I'm the (Chairman of the Board) for TCGIS.

Day Wednesday   **Time** 1:30 PM - 2:00 PM   **Room** C

Title An in Depth Look into Tennessee Agriculture – Who Are Making the
            Most of Their Resources

Author 1   Tina Sullivan   **Author 2**

Organization   University of Tennessee at Martin

Presentation Abstract

Farms across Tennessee vary in size and commodity types, but is each county efficiently using its agricultural resources? Efficiency was determined on profitability monetarily per acreage for a major commodity type – crop versus livestock, as well as on a state average. Utilizing ArcMap and 2012 USDA Agriculture Census data, a spatial study was conducted to determine current agricultural uses and suitability for recommending future agricultural land uses. Other data examined included farm size, owner ethnicities, and percentage of farms receiving government payments. Results indicate variations among each of the regions; west and middle typically being above average for croplands and east being above average with livestock dedicated land. Within each, there were outliers with variables such as landscape, commodity prices, specialty crops, and 2012 weather. Demographic factors illustrated key differences between the regions.

Presenter Biography

Senior agriculture undergrad student at UT – Martin with a concentration of Agriculture Engineering Technology, option of Precision Agriculture, and minor in Geography. Being from Bledsoe County, agriculture plays an important role in everyday life whether on the farm or not. This has resulting in being part of a strong farming community. Raising meat goats from a young age as introduced to me by my father, agriculture has played an important role to me as I have grown up and went through school, especially when choosing a university and major. Just as individuals are different, so is agriculture across the state, leading to the desire to learn more about the differences between the regions and counties of Tennessee.

Day Wednesday   **Time** 1:30 PM - 2:00 PM   **Room** D

Title Comparing Volumes from UAV and LiDAR 3D Point Clouds

Author 1   Jeff Lawrence   **Author 2**

Organization   GEO Jobe GIS Consulting

Presentation Abstract

The presentation will review the relative strengths of two methods of calculating the volume of various mineral stockpiles. While both LiDAR and Photogrammetry based volume data collection processes and calculations provide safety, cost, and accuracy advantages over previous methods, this presentation will show that one technique provides even more advantage in safety, cost, and accuracy over the other.

Presenter Biography

Jeff has a Master's and Bachelor's in Economics. He currently works in business development in the sUAS division of GEO-Jobe GIS Consulting. He is a Part 107 Licensed UAV pilot with the FAA. He plans, conducts, and processes drone based aerial photography missions. He works extensively with volumetric and topographic data and analysis derived from the Ortho photos GEO Jobe captures. Previously, Jeff was a project manager for 8 years with a consulting engineering firm in Brentwood, TN. He managed GIS data management and data updating efforts for the Nashville Public Works automated routing applications. Prior to that, Jeff completed a 20+ tenure with the Nashville Planning department as the Assistant Executive Director. He started out as Head of Research which is where he first started working with GIS by assisting with the creation and development of what became the Metro GIS.

Day Wednesday **Time** 2:00 PM - 2:30 PM **Room** B

Title Modern Data Sharing Practices including the Open Data Portal

Author 1 Matt Lane **Author 2** Sunny Fleming

Organization State of Tennessee, STS GIS Services; TDEC Division of Lands & Facilities

Presentation Abstract

GIS data owners and distributors have many options at their disposal for making their data available to those that need it. Navigating these different options can at times be difficult and intimidating. This presentation will discuss the strengths and weaknesses of many of these options. The State of Tennessee′ use of ESRI′s Open Data Portal will be discussed in depth.

Presenter Biography

Matt Lane leads the development team for Tennessee′s STS GIS. He has worked within the GIS discipline for both higher education and state government for the last 17 years.

Sunny Fleming is the GIS Specialist for Tennessee State Parks. She graduated with a degree in ecology from UT-Chattanooga and began her career in TDEC in 2013 with the Division of Natural Areas.

Day Wednesday   **Time** 2:00 PM - 2:30 PM   **Room** C

Title Urban Advancement Relative to Population Growth Using Majority of
          Nashville Metropolitan Statistical Area

Author 1   Jessie Eglinton   **Author 2**

Organization Tennessee Technological University

Presentation Abstract

Land use/land cover patterns, when assisted by population density changes, allow maps to tell the story of where people are choosing to reside within Middle Tennessee and why. Urbanization shows a few major trends in terms of the increase in urban land plotted against population density change in Middle Tennessee. I used NLCD data from 1990 and 2010 alongside Census Bureau data from 1992 and 2011 to show which counties in the majority of the Nashville MSA were booming with jobs and thriving on commuters as opposed to counties that are seeing an increase in urbanization paired with significant residential population growth.

Presenter Biography

I am currently a Junior at Tennessee Technological University in Cookeville, TN pursuing my BS in Geoscience with my concentration in GIS. I have been a Teaching Assistant for Theory of GIS I and Theory of GIS II for one year under Jason Duke. I am also currently working an internship at the US Fish and Wildlife Service Field Office in Cookeville, TN in the regional GIS department.
I am also working on receiving my Professional Science Masters in Environmental Informatics alongside my undergraduate studies. My current plan is to graduate with my BS in May 2019, and to also be nearly halfway done with my PSM by that point. I plan to go to work and finish my Masters at the same time.
I would like to use my skills I have obtained involving GIS in an environmental-based field, if possible. I thoroughly enjoy utility mapping, municipality mapping, and conservation-aimed approaches to mapping. My ultimate goal is to apply my love for GIS in an agricultural field. I love both of these things, so my dream job would be to collect data about various agricultural elements (soil quality, crop yield, irrigation), perform statistical analysis, and be able to present the results to assist commercial farming operations.

Day Wednesday   **Time** 2:00 PM - 2:30 PM   **Room** D

Title Freshwater Information Network (FIN): A online reporter to engage
citizens and scientists

Author 1   Sarah Sweat   **Author 2**
Organization Tennessee Aquarium Conservation Institute

Presentation Abstract
The Southeastern United States is a global biodiversity hotspot for freshwater aquatic organisms. Distributional and status data for these organisms are stored in a variety of platforms, including spreadsheets, museum records and databases, unpublished reports, and field notes. The Freshwater Information Network (FIN) aims to combine all of these data sources into a single user friendly "living" database containing georeferenced locations and voucher photographs. This interactive website allows scientists and the public to submit new locality data and field photograph vouchers through a configurable application made with ArcGIS Solutions. Distribution maps, photo voucher galleries, a brief description of life history, and literature cited for each species will allow for a one stop webpage on information on all the species for both scientists and the public. With new addition of data and better communication between experts and citizens, conservation efforts in the Southeast can become a focused collaborative effort.

Presenter Biography
Sarah Sweat joined the Tennessee Aquarium Conservation Institute staff in 2014 as their GIS Analyst. Sarah has her MS in Biology from Georgia College and State University where she worked on the hydrogeological characteristics and ecology of the Oconee Burrowing Crayfish. She primarily works on maintaining databases on field surveys, biogeographical analyses on turtles, and managing a repository of freshwater aquatics data throughout the Southeast. Recently she just completed a regional analysis on conservation priority areas for aquatics in the Southeastern United States and a citizen science reporter for freshwater fishes.

Day Wednesday   **Time** 2:30 PM - 3:00 PM   **Room** B

Title Cedars of Lebanon "Smart Park" – implementing a suite of ESRI
applications to establish workflows and change business practices.

Author 1   Sunny Fleming   **Author 2**

Organization   TDEC – Tennessee State Parks

Presentation Abstract
State Park operations are unique in that each park can be thought of as miniature cities with governance (park staff), citizens (park guests) and the necessary infrastructure to ensure the park operates smoothly (utilities, facilities, natural resources and the maintenance thereof.) Historically, much of these park operations have been autonomous. This has resulted in difficulty reporting up to the Bureau level and developing metrics across the parks system. The "Smart Park" concept aims to tackle multiple aspects of park operations, but this presentation will focus on our first initiative to improve maintenance workflows. We've combined the use of Survey123, Workforce, Dashboard and custom web apps to develop a "work order" system that is equally useful for the park and for the Bureau, with potential to scale up and to tackle the unique challenges we face in often remote and disconnected parks. We will discuss the pros, cons and lessons learned.

Presenter Biography
Sunny Fleming works for Bill Avant at Tennessee State Parks as a GIS/Parks and Conservation Specialist. She's been with State Parks coming up on two years after working as an ecologist with the Division of Natural Areas for three years.

Day Wednesday   **Time** 2:30 PM - 3:00 PM   **Room** C

Title A Rapid Assessment of Elevation Change from Hurricane Irma

Author 1   Daniel Adams   **Author 2**

Organization   U.S. Fish and Wildlife Service

Presentation Abstract

LiDAR collected post-Hurricane Irma will be used to determine vegetation change based on canopy height due to the impacts of the storm by comparing it to LiDAR collected prior to the Hurricane. This is a project conducted by myself for use within the US Fish and Wildlife Service.
The elevation and vegetation analysis for this project was performed on LiDAR data covering the Pelican Island National Wildlife Refuge. After extensive review, this is the only refuge that had significant LiDAR coverage to perform a comprehensive elevation and vegetation analysis. Using the LiDAR data acquired from NOAA and collected by the Army Corps of Engineers, a raster image was generated from the .LAS point cloud for both the 2016 and 2017 LiDAR datasets. Using the Raster Calculator function in ArcGIS Pro, the 2017 raster is subtracted from the 2016 raster. The newly generated raster will reflect the change in elevation between the 2017 and 2016 LiDAR.

Presenter Biography

Daniel Adams is a Pathways Regional Cartographer Trainee with the U.S. Fish and Wildlife Service in Cookeville, TN. He has been with the Service since January 2017, making the transition from his Pathways position with the U.S. Army Corps of Engineers where he served as the main point of contact for geospatial and environmental concerns for the Center Hill Lake project in Lancaster, TN. Daniel has led an ongoing stream habitat modeling project based out of Sparta, TN where he has developed a new methodology for mapping geologic substrates using side scanning sonar practices.

He is a Geoscience graduate from Tennessee Technological University concentrating in GIS and is currently enrolled in Tennessee Tech's Environmental Informatics Professional Science Master's Program. His interests aside from geography and cartography include his commitment to physical fitness.

Day Wednesday   **Time** 2:30 PM - 3:00 PM   **Room** D

Title Transforming the Land Owner Assistance Program with ArcGIS Pro

Author 1   Heather Slayton   **Author 2**   Suzanne White
Organization   State of Tennessee

Presentation Abstract

The Division of Forestry began using ArcGIS Pro for their land owner assistance program.   Standards were implemented for data collection and mapping.   The process for the standardization and area forester workflows will be presented.   Area foresters with little or no GIS experience can now quickly and efficiently make maps for the forest owners. In addition to increasing efficiencies in the landowner assistance program, the Division of Forestry will now be able to consolidate all assistance events into one database. This will provide the Division with a landscape scale prospective on their impacts to managing Tennessee's forests.

Presenter Biography

Heather Slayton, Division of Forestry, State of Tennessee
Suzanne White, Strategic Technology Solutions – GIS Services, State of Tennessee

Day Wednesday   **Time** 3:30 PM - 4:00 PM   **Room** B

Title From Paper to Geo-enabled Apps and Reporting, Maryville's Data Revolution

Author 1 Ray Boswell   **Author 2** Gerry Boquin

Organization Blount County GIS Group and Jacobs Engineering

Presentation Abstract
Integrating paper based processes into the digital world can be challenging, particularly for those collecting the data. This talk describes how the City of Maryville's Water and Sewer Department (WSD) increased operational efficiencies by integrating Collector Apps, python scripts and webmaps to perform field data collection and real-time validation. Operational dashboards helped WSD staff to plan and prioritize tasks spatially.

Presenter Biography
Ray Boswell is the GIS Manager for the Blount County GIS Group which supports the GIS efforts for the City of Alcoa, Blount County, and the City of Maryville. He graduated from the University of Tennessee, Knoxville with a BA in Environmental Studies and a minor in Geography. He has worked in the geospatial industry since 1996, the last 18 years in a city/county environment.

Gerardo Boquin is a GIS Consultant with Jacobs Engineering Group. He Graduated from Louisiana State University with a M.Sc. in Geography and a Double Minor (Pathobiological Sciences and Disaster Science Management).   He has worked in the geospatial industry since 2005. As of the last 5 years, his efforts have focused more into System Integration, Data Quality, and Process automation.

Day Wednesday   **Time** 3:30 PM - 4:00 PM   **Room** C

Title Be a GISCORPS Volunteer

Author 1   Lori Pittman   **Author 2**   Bethany Hall
Organization NRCS and Rutherford County GIS for GISCORPS

Presentation Abstract
We will discuss the volunteer program and a couple of the projects we have been involved with specifically. We will show how they were set up in AGOL, how they were shared and captured and how they can sign up to do the same.

Presenter Biography
Lori Pittman started in GIS in the early 1990s as a student of MTSU.   She graduated from MTSU with a B.S. in Geography and an Emphasis in Natural Resource Mgmt. She is passionate about global sustainability, human rights, mindfulness, traveling, and experiencing as many cultures as possible. She believes every individual can make a difference, that the more you give the more you get and considers herself an eternal optimist. She proudly works as a Geographer for NRCS under the USDA.

Bethany Hall is passionate about GIS and story mapping. She enjoys teaching others how to use GIS and story maps as a gateway to tell their story. In her spare time, she volunteers with URISA's GIS Corps and local historians on developing data and story maps. She has an Associates of Applied Sciences degree in Computer-Aided Drafting Technology from ITT Technical Institute, followed by a Bachelor's Degree in Information Systems from American Intercontinental University, along with a Graduate Certificate in Geosciences and a Masters of Arts in Liberal Arts degree from MTSU, where she specialized in GIS while studying Human Migration patterns and their causes.

Currently, Bethany is employed full-time with Rutherford County GIS as their non-public safety analyst, works part-time with Murfreesboro Police Department as a geo-coder, and adjuncts at MTSU in the Global Studies department teaching Introduction to World Regional Geography to

Title Trimble Catalyst: High Accuracy GNSS on demand from your Android
       Phone or Tablet

Author 1   Cliff Hoeffner   **Author 2**

Organization Duncan-Parnell, Inc

Presentation Abstract

Yesterday your phone could tell you where you were within a few meters.   Today, with Trimble
Catalyst, your phone can tell you where you are within 1 meter down to a few centimeters.   Trimble
Catalyst is a software/app based GNSS Receiver and a lightweight antenna that plugs directly into
your Android device.   Since Trimble Catalyst is a software based GNSS receiver it delivers high
accuracy positioning with an on-demand subscription service.   Now anyone with a smart device can
collect high accuracy data without the upfront cost of a dedicated GNSS receiver.   The little blue dot
on your phone just got a whole lot smaller and more accurate.

Presenter Biography

Cliff Hoeffner is the Trimble Mapping & GIS representative for the state of Tennessee.   He is a
Tennessee Tech graduate and has 12 years of experience capturing GIS data using high accuracy
Trimble GNSS equipment.

Day Wednesday **Time** 4:00 PM - 4:30 PM **Room** B

Title Modernization of Septic Permitting at TDEC using ESRI Survey123 and Collector

Author 1 Richard Cochran **Author 2**

Organization Tennessee Department of Environment and Conservation, Division of Water

Presentation Abstract
TDEC's Division of Water Resources Sub Surface Disposal program is migrating from a paper driven permit system to a digital system to better meet the needs of the program and public. This migration leverages ESRI Survey123 and Collector technologies to create a true mobile workforce and eliminate the flood of paper documents. TDEC Permit and inspection documents were converted to Survey123 surveys. Staff use Panasonic Toughbook CF-20s to complete surveys while onsite and submit them to the ArcGIS Online cloud. Python scripts transfer permit data to Oracle tables inside the state system. Once a permit is completed, a PDF of the state permit is generated, emailed to the customer, and archived in a FileNet. A GIS feature class is updated daily and used in ESRI Collector maps when revisiting sites for final inspection. Submission URLs prepopulate a new Suvey123 survey for the final inspection. Once inspections are completed, data are submitted back through ArcGIS to state Oracle tables and a final PDF is created and archived.

Presenter Biography
Worked for TDEC's Division of Water Resources for 22 years. GIS coordinator for the Division. Received GISP in 2015.

Day Wednesday   **Time** 4:00 PM - 4:30 PM   **Room** C

Title A Comparison of Accuracy and Precision of Recreational Grade GPS Units

Author 1   Carrie Baker   **Author 2**   Sandy Mehlhorn

Organization Family farm, UT Martin

Presentation Abstract
A year-long study was conducted to determine the accuracy and precision of different recreational grade GPS units under normal usage conditions. Four different GPS models were chosen from popular, mid-price range brands. Four control points were established on UT Martin's campus for the study using survey grade equipment for comparison with the data collected by the handheld units. Data was taken 2 to 3 times a week at various times and days of the week to ensure the satellites would be in different orbital positions each time data was collected. The purpose was to subject each unit to conditions that the average user might encounter instead of 'perfect' conditions units are often tested under during and after development. Weather, time of day, and leaf coverage were recorded in addition to the unit's waypoint information. Garmin units were consistently more accurate in all weather conditions with Magellan typically being the least.

Presenter Biography
My name is Carrie Baker and I manage, along with my father, the family farm along with the environmental resources associated with it. I completed my Bachelor of Science in Agriculture at the University of Tennessee at Martin in 2012 followed by my Master of Science in Agriculture and Natural Resources in 2017.

Day Wednesday   **Time** 4:00 PM - 4:30 PM   **Room** D

Title 'Not Your Mama's 911 Mapping System'

Author 1   Shawn Anderson, GISP   **Author 2**
Organization   Tipton County GIS

Presentation Abstract
The presentation will examine the history of how Tipton County, TN 911 has utilized mapping technology from paper to online services in order to serve our great citizens.

Presenter Biography
Shawn Anderson has been the GIS Director for Tipton County Government since 2004 and is just nutty over GIS.

Title Simplified Web Mapping in the New TN.gov

Author 1 Jared White   **Author 2**

Organization TN STS GIS

Presentation Abstract

State Entities typically perceive deploying web mapping applications, even simple ones, as arduous, highly involved processes from conception to fruition. The State of TN's STS GIS team has options to make the process much easier through the State of TN's newly minted website content management system (CMS). The state CMS allows any state entity to create web content for both internal and public facing applications. We on the STS GIS team have developed numerous tools for integrating and displaying GIS data in an easily navigable and digestible fashion. These tools are highly configurable, performant and accessible, and can be generally made and deployed over the course of a few hours.

We'll discuss the ease of getting and deploying the mapping plugin, go over the configurability of the map, and dive into some of the more technical aspects behind this tool.

Presenter Biography

Jared is a full-time software architect for the private financial sector and part time software developer for the State of TN's STS GIS team. He has an 8 year history in GIS software development and data science focusing on full stack software development, geospatial data processing and natural language processing. His primary focus with the State includes building and maintaining full stack web solutions and creating novel data processing pipelines.

Day Thursday   **Time** 8:00 AM - 8:30 AM   **Room** C

Title An Update on the Status of K-12 Geography Education in Tennessee

Author 1 Kurt Butefish   **Author 2**   Michael Camponovo

Organization Department of Geography at the University of Tennessee

Presentation Abstract

Come learn about the work that Kurt and Mike are doing to bring positive change to Geography education, especially in the area of geospatial technologies.   Find out about the changes to the K-12 Geography curriculum that will be implemented during the 2019/20 academic year.   Mike will highlight the really cool hands-on tools and activities with which he is engaging thousands of K-12 students across the state in an effort to educate and recruit your future employees.   He will also tell you how you can share your knowledge and expertise to spread the word about the power of geospatial technologies and related career paths for Tennessee's students.

Presenter Biography

Kurt Butefish manages the not-for-profit Tennessee Geographic Alliance whose mission is to advance geographic literacy across the state, mainly by working at the K-12 level.   The organization provides teaching materials and professional development programs for teachers and advocates for geography education in Nashville.   Kurt has a Master's Degree in Geography from the University of Tennessee.

Michael Camponovo manages the GIS Outreach and Engagement Laboratory. This lab promotes GIS and geospatial technologies and encourages people to pursue a career in geography. Mike has a Master's Degree in Geography from the University of New Mexico.

Mike is the Chair of the TNGIC Education Committee and Kurt is the Board Liaison for the Education Committee.

Day Thursday   **Time** 8:00 AM - 8:30 AM   **Room** D

Title GIS & BIM

Author 1 Mandy O'Shea   **Author 2**

Organization KCI Technologies, Inc.

Presentation Abstract

As a leading engineering and technology company, KCI offers subject matter expertise and technical solutions including: 3D laser scanning (Lidar), Unmanned Aerial Vehicles (UAV) surveying, BIM/CADD compilation, 3D GIS conversion, Cloud hosting, and Web content delivery. 3D computer models and visualizations of sites and facilities can serve many purposes in the construction, facilities management, real estate, and public safety sectors. The trouble is, many entities don't have the raw data or technical capabilities to produce or host 3D data for Building Information Models (BIM), GIS, and indoor navigation. The good news is that these products and models are becoming cheaper, and KCI offers this as a soup-to-nuts service line.

Presenter Biography

Mandy O'Shea is a Project Manager / GIS Analyst for KCI Technologies.

Day Thursday   **Time** 8:30 AM - 9:00 AM   **Room** B

Title Storm Water Inspections using Collector and Survey123 for ArcGIS

Author 1 Kevin Bingham   **Author 2**

Organization Town of Collierville

Presentation Abstract

Collierville recently migrated our monthly storm water inspections to an Esri based process using Collector for ArcGIS and Survey123 for ArcGIS. Come and learn about how the Engineering Inspectors felt about using a new (to them) software solution, the challenges we faced during our implementation, and about our progress since we implemented the solution.

Presenter Biography

Kevin Bingham studied Geography at the University of Memphis. He has worked in local government at the Town of Collierville, in the private sector as a consultant at EnSafe Inc, and in the federal government at the Army Corps of Engineers. He has been the GIS Manager at the Town of Collierville for the past eight years. Kevin lives in Lakeland with his wife, Anna, and their three boys.

Day Thursday   **Time** 8:30 AM - 9:00 AM   **Room** C

Title FAA Part 107 Drone Operations

Author 1 Lewis Graham   **Author 2**

Organization GeoCue Group Inc.(and subsidiary AirGon LLC)

Presentation Abstract

In August of 2016, the USA regulatory framework for commercially flying drones was dramatically simplified under the new FAA Part 107 regulations. Within just a few months of the implementation of Part 107, hundreds of commercial drone pilots became FAA certificated and thousands of drones were registered for operations. In this presentation we will cover the framework of Part 107 (which applies to both commercial and public sector operators) in the context of practical drone operations. Additionally, we will cover some of the misconceptions that are common to drone operations. Finally, we will discuss the new electronic Low Altitude Authorization and Notification Capability (LAANC) that is just coming online. Participants will leave the presentation with a comprehensive overview of what is and is not possible under the Part 107 regulations.

Presenter Biography

Lewis is the President and Chief Technical Officer of GeoCue Group, a group of companies whose foci are LIDAR tools and consulting, sensor processing workflow management, point cloud exploitation and, through its AirGon subsidiary, small UAS mapping systems.

Lewis is currently serving on Technical Advisory panels for drone systems Research & Development for the Texas and California Departments of Transportation.

Lewis is a member of the Point Cloud (LAS) Working Group of the American Society for Photogrammetry and Remote Sensing (ASPRS) and a member of the Transportation Research Board (TRB). He is a board member of the M&S division of the National Stone, Sand and Gravel Association (NSSGS) and the International Society for Photogrammetry and Remote Sensing (ISPRS) Foundation. He is the 2017 winner of the ASPRS Fairchild Photogrammetry award.

Lewis holds degrees in Physics and Electrical Engineering.

Day Thursday   **Time** 8:30 AM - 9:00 AM   **Room** D

Title Tennessee LiDAR and Derivative Products Program

Author 1 Eric Cole   **Author 2**

Organization Woolpert, Inc

Presentation Abstract

With the acquisition and processing of new LiDAR for most of the State of Tennessee underway there is an opportunity to update many other sources of GIS and Geospatial data at the same time. Using recently acquired LiDAR data combined with new or existing orthoimagery a variety of new datasets can be generated and existing datasets can be updated. This presentation will discuss the technical aspects of what lidar is and how it's collected and processed as well as the many data layers that can be produced from lidar and imagery. We will present information on Land Use/Land Cover, Impervious Surfaces, contours, 2D and 3D planimetrics as well as updating existing planimetrics.

Presenter Biography

Eric Cole, with Woolpert, is a geospatial professional with 33 years' experience that encompasses all aspects of the industry with knowledge of large-scale mapping efforts.

Eric has experience in the management of production staff, production workflow, scheduling, quality control, and final product deliverables. Mapping products include LiDAR, surface models, digital orthophotos, and planimetric features in a personal geodatabase, metadata, and impervious surfaces.

Day Thursday   **Time** 9:00 AM - 9:30 PM   **Room** B

Title Implementing UAS-based LiDAR for High Resolution Data Capture

Author 1   Andy Carroll   **Author 2**

Organization Skytec LLC

Presentation Abstract

Light Detection and Ranging (LiDAR) sensors are commonly used to capture of high resolution 3D point clouds, surfaces and terrain models. LiDAR sensors are fully capable of vegetation and ground cover penetration for accurate terrain surface measurement, as compared to more common, less obstruction tolerant, photogrammetric methods.   Recent advances for inertial measurement unit devices, global navigation satellite system receivers, and regulatory authorizations have increased the deployment of unmanned aerial systems (UASs) for geospatial data acquisition. Comparably, commercially manufactured LiDAR sensor payloads are available in smaller form factors and weights. Results from recent field mapping missions and LiDAR sensor evaluations, indicate increased mobility, reduction of safety hazards, and high data quality results from LiDAR enabled UAS platforms. In addition, UAS systems offer potential time and cost savings, verses traditional survey or manned aircraft acquisitions.

Presenter Biography

Mr. Andy Carroll is Co-Founder and CTO of Skytec LLC, an aerial data service provider, based in Chattanooga, TN.   Andy has over 18 years of professional experience in environmental and natural resource applications of GIS and remote sensing. Andy has a Master's of Science Degree in Environmental Science from the University of Tennessee at Chattanooga.   He is a registered Professional Geologist and GISP. Andy has managed multiple state and federally funded applied GIS and remote sensing research projects through his role as Director and principal investigator for the Interdisciplinary Geospatial Technology Lab at the University of Tennessee at Chattanooga. Andy previously served as project manager for the Tennessee Department of Environment and Conservation, Division of Superfund, where his work focused on geospatial application development for CERCLIS site management. Andy and his business partner, formed Skytec in March of 2015.

Day Thursday   **Time** 9:00 AM - 9:30 PM   **Room** C

Title Asset Management with Professional-Grade Street-Level Imagery

Author 1 Paul Madrid   **Author 2** Kevin Bingham

Organization CycloMedia Technology

Presentation Abstract

Communities are using positionally-accurate, high-resolution, street-level imagery to speed workflows and reduce transportation costs by reducing the need for field visits. The Town of Collierville is currently leveraging CycloMedia Technology for their Water Valve inventory throughout the city. MLGW has partnered with Collierville in order to visualize and verify addresses, utility assets, manage vegetation encroachment etc. Transportation and public works departments complete asset data collection projects more quickly and without leaving the office. Desktop reappraisal for assessors is enhanced with a clear view of building condition and grade as well as address verification. Assessors can also capture images of structures for property reports and websites. Ability to integrate with exiting systems, including ArcGIS, makes access simple. This session will describe projects in several communities that benefit from adding this valuable resource to their GIS toolset, including Houston, TX, Housing Department and Washington D.C. with their traffic sign management project.

Presenter Biography

Paul Madrid is a resident of Texas and served 21 years in the United States Army as a Military Intelligence Analyst. Before joining the CycloMedia team, Paul was an Esri employee for a few years and now enjoys working with local state and government entities to provide high resolution imagery for smart decision making.

Day Thursday   **Time** 9:00 AM - 9:30 PM   **Room** D

Title 3D Feature Extraction using 3DEP Lidar data and ArcGIS Pro

Author 1   Ian C. Feathers   **Author 2**

Organization Esri

Presentation Abstract

Lidar Data provided by the USGS 3D Elevation Program and the State of TN STS-GIS Services can be used to generate 3D content using ArcGIS Pro.   We'll review several features and templates that allow extraction and analysis of accurate GIS features in 2D/3D.   We'll cover what it takes to build a 3D Basemap in East TN using templates in ArcGIS Pro and Lidar data.   Once you've built your 3D Basemap, you can visualize and review the data in a variety of ways that contribute to more effective spatial decisions.

Presenter Biography

Ian Feathers serves as a Solution Engineer for the Geodesign/Facilities division at Esri, the global leader in GIS and Spatial Analytics.   He holds MS and BA degrees in Geography from the University of Tennessee – Knoxville.   Feathers' is a geomentor in East TN, a published songwriter, and a member of the Americana Music Association (ianfeathersband.com).   Additionally, he's a member of the Appalachian Trail Conservancy and serves as a coach at Iron Mountain Crossfit in Abingdon, VA.