

CELEBRATING



NORTH CAROLINA ArcGIS USERS GROUP

2019 NCAUG Annual Conference

September 18-20, 2019 | Wilmington, NC
Hotel Ballast | Wilmington Riverfront

"How Far We've Come"

Conference Agenda Packet

www.ncaug.com

Welcome to the 2019 NCAUG Annual Conference



From the President's desk...

Welcome to the fall conference and North Carolina ArcGIS Users Group's (NCAUG) celebration of thirty years! Just look around and see "HOW FAR WE HAVE COME!" It seems to be the year for major milestones NCAUG is celebrating three decades and a conference in San Diego just celebrated five decades. Please take notice of the special logo for this year. James Boyette won the logo contest. What better way to celebrate 30 years than to have Mr. Jack Dangermond, the man, the myth, the godfather of GIS come and celebrate with us in North Carolina. Welcome Mr. Dangermond, I hope you like your new title I have given you: Godfather of GIS.

Over the years we as GIS colleagues have met at this conference to share data, technologies, and ideas as a community. The NCAUG board is grateful that you have chosen to invest in yourself and your career by networking and gaining the wealth of knowledge that will be presented at this conference. Over the years we have had themes like "It's All About Change", "It's all about #networking", "Geospatial Decision Making". Just these themes alone represent how dynamic GIS has been over the decades. Some in this room may remember digitizing tables, "themes" within a project, mapping in some CAD software, using paper maps exclusively in the field, etc. The last one mentioned we all hope this method is history; I shuddered just typing that out. Now we are using technology and editing on the fly. People out in the field can send data back instantly, LIDAR is in multiple applications and we are ready when disaster strikes our great state. This is when I should mention that we are not to speak that H word that we are in the season of. Let's treat this H word like Harry Potter's world treats "he whom should not be spoken". After last H season, I think most of us in the room are done with those for a very long time. I know I personally hope to not be in an EOC for many years to come. Some key features I would like to point out about this conference:

- WE GOT JACK!!!!
- The statement above should just start and conclude this letter!
- We have some fantastic Pre-Conference Workshops that range in subjects from NextGEN 911, to LiDAR, to ArcGIS Pro, and Photogrammetry.
- Wednesday night social welcomes Jack Dangermond. Where will Wednesday's social be? Please visit some of the event's sponsors to get clues on the location. The time is from 6-9 PM. Get your clues at the booths of Atlas, Duncan Parnell, Geo Decisions, Highland Mapping, McKim & Creed, Quantum Spatial, Stewart, Surdex, WithersRavenel. At this social you will walk away with some swag! You will not want to miss out.
- Not into the scavenger hunt to find this mystery location? We will post the location of the event on social media at 5:30. The board hopes that you will use your detective & mapping skills and play along.
- Thursday we will have a vendor social in the exhibit hall. Please come out and meet the wonderful vendors that help make this event happen.
- Wednesday night, you MUST wear your conference name tag to get a beverage ticket. The ticket will be good for ONE beer or glass of wine, but we will have tea, water and soda for everyone. Plus names are hard to remember, so people are more likely to strike up a conversation if they aren't trying to remember your name first! (I speak for myself on this one especially!)
- We will have door prizes throughout this event. You will want to make sure you are here at closing because you have a chance to win more door prizes there.
- If you are interested in being on the NCAUG board, please come to the registration desk and let them know. We will keep a list of people's names and contact information. The board meets twice a year in person and the rest is conference calls on Friday mornings, typically monthly but closer to conference time there are more.
- I would like to thank each one of you for attending the fall conference. I challenge you to meet ten new people and take back to your office at least 3 things you have learned this conference.

...If you are still reading this at this point, please see me and I will give you something special, because I am impressed! This is your opportunity to let your light shine brightly in the GIS community. This group of colleagues has personally helped me in my career by knowing people to call when my office is stuck on a project. I've also made some very special friends in this community. The networking and the knowledge you can take away from these conference classes and presentations will be invaluable. It's up to you to be present and be the best you can be in GIS.

Sincerely,

A handwritten signature in blue ink that reads "Rachel Patterson".

Rachel Patterson, GISP, PLS
NCAUG President
GIS Manager – Moore County, NC

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Moore County, NC



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ESRI

2019 Conference Highlights



Special Keynote Speaker

We are honored to host Esri Founder and CEO, **Jack Dangermond** as our special keynote speaker this year! Mr. Dangermond is an American entrepreneur and businessman who, in 1969, founded the Environmental Systems Research Institute (Esri) with his wife, Laura. Based in Redlands, CA, he is a graduate of California State Polytechnic University and has Masters degrees from the University of Minnesota and Harvard.



Esri Hands-On Learning Lab (Dudley Room – 3rd Floor)

We're excited to once again feature the Esri Hands-On Learning Lab at the conference this year! This gives our attendees an excellent opportunity for learning, asking questions and exploring Esri software. The Esri Hands-On Learning Lab will be open during the following hours:

- **Wednesday 8:00am – 1:00pm**
- **Thursday 8:00am – 4:30pm**
- **Friday 8:00am – 12:00pm**

NCASPRS Technical Track (Starboard Ballroom – Lobby Level)



The NC Chapter of the American Society for Photogrammetry & Remote Sensing (NCASPRS) is hosting a series of technical presentations Thursday afternoon from 1:00pm to 4:30pm in the Starboard Ballroom. Come out to hear in-depth information regarding Drones, Remote Sensing and technical standards.

Wednesday Night Conference Social (Secret Location...)

Wednesday night from 6:00 -11:00pm, come join NCAUG for an evening of fun and networking with your peers! Your mission, should you choose to accept it, is to gather clues from our vendors and use a map to determine the location of this year's social. As a reward for your powers of deduction and to celebrate 30 years of NCAUG we'll have dinner, 1 drink ticket per person, and a great time together.

Thursday Night Vendor Social & Poker Run

Join us in the exhibit hall at Hotel Ballast Thursday night for food, drinks, cash bar and network with our amazing conference vendor sponsors! Learn all about their latest offerings to the geospatial industry and even inquire about future job opportunities. Social will run from 4:30pm-6:00pm in the exhibit hall. At 7:30pm, we'll start this year's downtown Wilmington Poker run...meet in the main lobby to participate!

Cash Raffle:

During the Conference, don't forget to purchase your tickets for the 50/50 Cash Raffle, an event that supports the NCAUG Student Scholarship Fund. Tickets will be available for just \$1 each, 6 for \$5, 13 for \$10, or 30 for \$20 and can be purchased at the Registration Booth and at the Vendor Social. The winner will be drawn Thursday at the Vendor Social.

2019 Conference Sponsors



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Pre-Conference Workshops



Tuesday September 17, 2019
Morning Workshops

ArcGIS Pro – An Introduction and Beyond

Instructor(s): Mike Sweeney (Esri)

Time: 8:00am to 12:00pm

Location: McRae Room (3rd Floor)

Cost: \$150

Course Overview: In this 4-hour workshop, you will be introduced to ArcGIS Pro, its interface and advanced capabilities. You will learn how to successfully make the transition from ArcMap as well as how to take advantage of the advanced features of ArcGIS Pro. This workshop is divided into 4 sections, as follows:

1. Introduction to ArcGIS Pro

Whether you have tried ArcGIS Pro or not, it is a bit different from what you are likely used to. Learn how to navigate the ArcGIS Pro interface. See how Projects are organized. Understand a number of the options that can be controlled to make ArcGIS Pro work the way you want.

2. Making the Transition from ArcMap

You may be an old hand at ArcGIS Desktop and are now ready to make the transition to ArcGIS Pro. We will walk through first steps you can take to start moving your work to ArcGIS Pro. Let's talk about the work you do and how to get over the hump of learning and using this new application. There are a lot of resources for making this transition and we want to make sure you are taking advantage of all of them.

3. How do I do *that* in ArcGIS Pro?

So you can navigate yourself around ArcGIS Pro. You can replicate your existing workflows from your ArcMap days. So what are you missing? What's the big deal with Pro anyways? Learn how to leverage what you already know about Pro with some advanced discussion on editing, map production and geographic analysis.

4. Advanced Features of ArcGIS Pro

Finally, we will wrap up with a section on what are considered some of the most useful and powerful features found only in ArcGIS Pro. For example:

- Learn how to take advantage of the Task feature in ArcGIS Pro
- Use Arcade for symbology, labeling and popups
- The Solution Deployment Tool
- Automation through Python and Jupyter Notebooks

NCASPRS Workshop: Theoretical vs. Practical Photogrammetry

Instructor(s): Harold Rempel (ESP Associates) & Christian Stalling (M. Kim & Creed)

Time: 8:00am to 12:00pm

Location: Bellamy Room (3rd Floor)

Cost: \$150

Course Overview: A comprehensive workshop covering the theoretical and practical components of photogrammetry and remote sensing including: history and technological developments over time, hardware and components, sources of error, best practices acquisition and processing, data accuracy issues, safety considerations and standards, and real world applications and examples. By the end of the workshop, attendees will have an understanding of the various technologies and how map standards, hardware, and processes work together towards the goal of serving the public.



CANCELLED

Pre-Conference Workshops



Tuesday September 17, 2019

Afternoon Workshops

Using ArcGIS Pro to Analyze LiDAR

Instructor(s): Geoff Taylor (Esri)
Time: 1:00pm to 5:00pm
Location: McRae Room (3rd Floor)
Cost: \$150
Course Overview: Join Esri for a 4-hour 3D workshop and discover how you can leverage your LiDAR data in ArcGIS Pro to 3D enable your organization's GIS. This session will cover LiDAR best practices, classification, 2D and 3D feature extraction. Attend this workshop and obtain all necessary knowledge to deploy your 3D base map.

Beyond the 98: Understanding when GIS data is ready for NG911

Instructor(s): Mark Whitby & Chris Reynolds (Michael Baker International - DataMark)
Time: 1:00pm to 5:00pm
Location: Bellamy Room (3rd Floor)
Cost: \$150
Course Overview: Are you ready for Next Generation 911? The snail-like pace of standards development rarely keeps pace with technology advances, leaving many in the NG911 GIS sphere wondering how they will determine whether their data is ready to support NG911. The time to begin this process is now. The goal is to synchronize the MSAG and all tabular databases with the GIS data to a 98% match rate. Find out if your data is ready for a Next Generation 911 and be part of the 98% and beyond!

Wednesday September 18, 2019

Grasping the Power of Python

Instructor(s): Skip Daniels (City of Greensboro)
Time: 8:00am to 12:00pm
Location: McRae Room (3rd Floor)
Cost: \$150
Course Overview: Students should have:

- *Laptop with a licensed ArcGIS Desktop (needed to use ArcPy library).*
- *A USB for the class work data, code snippets, and the PDF guide.*

This workshop is intended for beginner and intermediate Python users with concepts focused on using Python for ArcGIS Desktop scripts, many of which can also be used with ArcGIS Pro. The course will start by covering the basics of the Python language, including coding format, variables, loops, and functions. Next, a deep dive into the ArcPy library (ArcGIS's Python) to perform the following tasks:

- *Create file geodatabases*
- *Move data from one geodatabase to another (i.e. file geodatabase to SDE)*
- *Use Search, Update, and Delete Cursors to manipulate data*
- *How to find and use ArcPy tool examples to assist in coding*
- *Use analysis tools (i.e. clip, dissolve, intersect, etc.) to create new data*
- *Information on how to automate scripts.*

Other Python skills covered will include, if time permitting:

- *How to read/write CSV files*
- *The use of SQL to modify SDE feature attributes*
- *How to add/install other Python libraries i.e. to create PDFs and GUI interfaces for your scripts*

The instructor will provide many code snippets that can be modified for personal use, along with a PDF book with everything covered in this course (plus more tips and tricks like using Python for ArcGIS Add-Ins).

2019 Conference Agenda



Tuesday Sept. 17		
7:30am – 5:00pm	Registration Open	
8:00am – 12:00pm	McRae Room (3 rd Floor)	Pre-Conference Workshop: ArcGIS Pro – An Introduction and Beyond Mike Sweeney (Esri)
12:00 – 1:00pm	Lunch on your own	
1:00 – 5:00pm	McRae Room (3 rd Floor)	Bellamy Room (3 rd Floor)
	Pre-Conference Workshop: Using ArcGIS Pro to Analyze LiDAR Geoff Taylor (Esri)	Pre-Conference Workshop: Beyond the 98: Understanding when GIS data is ready for NC911 Mark Whitby & Chris Reynolds (Michael Baker International - DataMark)

Wednesday Sept. 18		
7:30am – 1:00pm	Registration Open	
8:00am – 12:00pm	Exhibitor Setup – Grand Ballroom: Merrick	
8:00am – 12:00pm	McRae Room (3 rd Floor)	Pre-Conference Workshop: Grasping the Power of Python Skip Daniels (City of Greensboro)
		Esri Hands-On Learning Lab Open 8:00am-1:00pm
12:00 – 1:00pm	Lunch on your own	
Plenary Session – Grand Ballroom		
1:00 – 1:45pm	Welcome & NCAUG Business Meeting Rachel Patterson, PLS, GISP – NCAUG President	
1:45 – 2:30pm	Special Presentation: Looking back on 30 years of GIS NCAUG Board	
2:30 – 3:00pm	Break	
3:00 – 4:30pm	Special Keynote Address Mr. Jack Dangermond – Esri Founder & CEO	Exhibit Hall Open 1:00pm – 5:00pm
4:30 – 5:00pm	Vendor Lightning Talks – Diamond & Platinum Sponsors	
5:00 – 5:15pm	Plenary Closing NCAUG Board	
6:00 – 9:00pm	Conference Social (Secret Location – Get your clues in the exhibit hall)	

2019 Conference Agenda



Thursday Sept. 19

Morning Sessions

7:00am – 5:00pm	Registration Open		
7:00 – 8:00am	Breakfast Buffet: Grand Concourse		
Breakout Sessions	Remote Sensing 1 Grand Ballroom: Lillington/Caswell <i>Moderator: Joseph Ausby</i>	Mobile Data Collection 1 Grand Ballroom: Harnett <i>Moderator: Sallie Vaughn</i>	Mapping & Analysis 1 Starboard Ballroom (Lobby Level) <i>Moderator: Stacy Tolbert</i>
8:00 – 8:30am	Use of LiDAR Derived Surfaces to Create Inputs for the FHWA's Traffic Noise Model 2.5 <i>Sabina Bastias & Carrie Suffern (Gannett Fleming)</i>	ArcGIS Apps for the Field - Optimize Fieldwork <i>Jay Fowler (Esri)</i>	Turn Around, Don't Drown: NCDOT's Statewide Initiative to Visualize Road Flooding <i>Rebecca Bayham & Jason Hightower (Wood)</i>
8:30 – 9:00am	ESRI Terrains in the Age of Big Data (Transforming 25 TB of QL1 LiDAR into 165 GB of ESRI Terrains) <i>Mike Baranowski (ESP Associates)</i>	Multi-Jurisdictional Code Enforcement Using AGOL and Survey123 <i>Dustin Millsaps & Billy Rickles (WPCOG)</i>	Enhancing Socio-Ecological Resilience in Low Elevated Coastal Zones Subject to Recurrent Inundation <i>Dr. Narcisa Pricope (UNCW)</i>
9:00 – 9:30am	Use of Oblique Imagery in Local Government <i>Joey Wilson (EagleView)</i>	Mosquito Surveillance using Survey123 for ArcGIS <i>Mike Sweeney (Esri)</i>	How Unique is your Search? Dynamically Expand your Query <i>Michael Blair (Innovate! Inc.)</i>
9:30 – 10:00am	Modeling Potential Habitat with LiDAR <i>Katie Talavera (Environmental Services, Inc.)</i>	Esri's Collector, is MSL possible? A case study with Greensboro Water Resources <i>Peter Thompson (Duncan Parnell) Zach Petersen (City of Greensboro)</i>	Mapping Zoning History <i>Jeff Thomas (City of Wilmington)</i>
10:00 – 10:30am	Break		
Breakout Sessions	Making an Impact Grand Ballroom: Lillington/Caswell <i>Moderator: Kent Rothrock</i>	Emergency Management 1 Grand Ballroom: Harnett <i>Moderator: Lucy Brady</i>	Development 1 Starboard Ballroom (Lobby Level) <i>Moderator: Karyl Fuller</i>
10:30 – 11:00am	Maximizing your Esri Enterprise Agreement Investment <i>Dawn Matasic (Esri)</i>	The Role of GIS in the Aftermath of Hurricane Florence <i>Eliza Baldwin (New Hanover County)</i>	Leveraging Agile Software Development Methodologies to Manage Complex GIS Projects <i>Rick Wallace (Quantum Spatial)</i>
11:00 – 11:30am	Leveraging ArcGIS Solutions in Your Organization - Esri's Election Solutions and Others <i>Mike Sweeney (Esri)</i>	In the Eye of the Storm: Leveraging GIS for Safety, Mobility and Connectivity <i>Matt Lauffer (NCDOT Hydraulics Unit) Garrett Shields (Wood)</i>	Greensboro Fire SAR Assessment Application <i>Skip Daniels & Chris Susi (City of Greensboro)</i>
11:30 – 12:00pm	From a Yugo to a Ferrari —The Roswell GIS Story <i>Jason Marshall (Geographic Technologies Group)</i>	State GICC Working Group for Enhanced Emergency Response Overview <i>Hope Morgan (NCEM)</i>	Utilizing AWS for Custom ArcGIS Web Applications <i>Brandon Saunders (Highland Mapping)</i>
12:00 – 1:00pm	Lunch Buffet: Grand Concourse		

Esri Hands-On Learning Lab Open
Dudley Room (3rd Floor)

8:00am – 5:00pm

Exhibit Hall Open
Grand Ballroom: Merrick

8:00am – 5:00pm

2019 Conference Agenda



Thursday Sept. 19

Afternoon Sessions

7:00am – 5:00pm		Registration Open	
Breakout Sessions	Next-Gen GIS Grand Ballroom: Lillington/Caswell <i>Moderator: Garrett Shields</i>	ATLAS Grand Ballroom: Harnett <i>Moderator: Pam Carver</i>	NCASPRS Technical Workshops Starboard Ballroom (Lobby Level) <i>Moderator: Hope Morgan</i>
1:00 – 1:30pm	Innovation in Indoor Data Collection using Mobile Handheld Laser Technology <i>Matt Hogan & Stephen Strain (AECOM)</i>	NCDOT Project ATLAS - Project Delivery Tools and Data <i>Eric Wilson (GeoDecisions)</i>	ASPRS Positional Accuracy Standards for Digital Geospatial Data: Applications for UAS <i>Jamey Gray (Stewart)</i>
1:30 – 2:00pm	Inside ArcGIS Indoors: How to Implement Esri's Latest Product For Connected Workplaces <i>Wendy Peloquin (GISinc)</i>	The Highs and Lows of Tidal Mapping: Come 'Sea' the Tidal Dataset Developed as Part of NCDOT ATLAS. <i>Scott Davis (Axiom Environmental)</i>	Remote Sensed Data and Processing Methodologies for Transmission Modeling <i>Paul Badr (GPI)</i>
2:00 – 2:30pm	Planning a GIS Service Catalog – A New Way to Engage Customers and Ourselves <i>Kathi Cotney & Sarah Wray (NCDOT-DIT)</i>	Modeling Endangered and Threatened Species with ArcGIS and Machine Learning for NCDOT Project ATLAS <i>Ryan Duggar (HDR)</i>	Renewable Energy Siting in NC Using Geospatial Methods <i>Dr. Leila Hashemi Beni (NC A&T University)</i>
2:30 – 3:00pm	ArcGIS Hub - Share, communicate, and collaborate <i>Jay Fowler (Esri)</i>	Making headway with headwater! How a Statewide Surface Waters dataset was created under NCDOT ATLAS <i>Andy Kiley (NCDEQ) Karen Eggers (AECOM)</i>	Using the Cloud: NOAA's Emergency Response Image Processing <i>Jon Sellars (NOAA)</i>
3:00 – 3:30pm	Break		
Breakout Sessions	Web GIS 1 Grand Ballroom: Lillington/Caswell <i>Moderator: Brett Spivey</i>	Mobile Data Collection 2 Grand Ballroom: Harnett <i>Moderator: Matt Helms</i>	NCASPRS Technical Workshops Starboard Ballroom (Lobby Level) <i>Moderator: Hope Morgan</i>
3:30 – 4:00pm	Transit Planning Using Operations Dashboards <i>Miguel Fernandez (PART)</i>	City of Gastonia Looks to the Future of GIS with Valve Exercising Program <i>Brian Hart (Two Rivers Utilities)</i>	Volumetric Change Analysis of A Living Shoreline In Southeast North Carolina Using Drone Imagery <i>Sam Bradtke (UNCW)</i>
4:00 – 4:30pm	ArcGIS Online: Tips on Managing Users and Data <i>Tiffany Puett (Duncan Parnell)</i>	High Accuracy Workflow for GIS Data Collection <i>Davis Wildman (Eos Positioning Systems)</i>	Multispectral Satellite and UAV Remote Sensing with Biogeochemistry to Estimate Salt Marsh Wetland Carbon Sequestration in Wrightsville Beach, NC <i>Joshua Slocumb (UNCW)</i>
4:30 – 6:00pm	Vendor Social – Exhibit Hall Join us for drinks and light hors d'oeuvres as we mingle with our wonderful sponsors!		
7:30 – 9:30pm	Downtown Wilmington Poker Run Meet in the Lobby at 7:30pm to participate		

Esri Hands-On Learning Lab Open
Dudley Room (3rd Floor)

8:00am – 5:00pm

Exhibit Hall Open
Grand Ballroom: Merrick

8:00am – 5:00pm

2019 Conference Agenda



Friday Sept. 20

8:00 – 10:00am	Registration Open		
7:30 – 9:00am	Breakfast Buffet: Grand Concourse		
Breakout Sessions	Remote Sensing 2 Grand Ballroom: Lillington/Caswell <i>Moderator: Yvonne Harding</i>	Emergency Management 2 Grand Ballroom: Harnett <i>Moderator: Jason Hightower</i>	Development 2 Starboard Ballroom (Lobby Level) <i>Moderator: Jeff Webb</i>
8:30 – 9:00am	NCDOT UAS Program Office Update <i>Darshan Divakaran (NCDOT Aviation)</i>	Hurricane Florence – NCEM’s Disaster Data Preparedness & Risk Response Support Efforts <i>Colleen Kiley (NCEM)</i> <i>Richard Fogleman & William Hague (AECOM)</i>	Getting Started with Esri’s GeoEvent <i>Wendy Peloquin (GISinc)</i>
9:00 – 9:30am	Land, Air, and Sea Remote Sensing in GIS <i>Travis Howell (WithersRavenel)</i>	ArcGIS Enterprise Administration for Peak Volumes: Lessons Learned <i>Jamie Hammerman (NCEM)</i>	Mobile & Web GIS Applications: Improving Data Collection and Operation & Maintenance (O&M) Practices <i>Peter Erlenbach & Suzanne Zitzman (Maser Consulting)</i>
9:30 – 10:00am	NC Orthoimagery Program Future and Technical Tips/Tricks <i>Ben Shelton (NC CGIA)</i>	Hurricane Florence – Discovering Atypical Flood Areas <i>Brett King (City of Havelock)</i>	FIMAN-T: A New Tool for NCDOT’s Management and Response to Flood Impacts to Transportation Assets <i>David Key & Carrie Sigrist (ESP Associates)</i>
10:00 – 10:30am	Break		
Breakout Sessions	“Make GIS Great Again” Grand Ballroom: Lillington/Caswell <i>Moderator: Nancy Ross</i>	Web GIS 2 Grand Ballroom: Harnett <i>Moderator: Larry Sanders</i>	
10:30 – 11:00am	The Under-Utilization of GIS & How To Cure It <i>Adam Carnow (Esri)</i>	Improving NCDOT Traffic Ordinance Spatial Data Publications <i>Kathi Cotney & Ryan Koschatzky (NCDOT-DIT)</i> <i>Catherine Bryant (NCDOT Highway Safety Improvement Program)</i>	
11:00 – 11:30am		GreenCityGIS – Leveraging Esri’s Suite of Application’s within Parks and Rec Departments <i>Ethan Credle (Geographic Technologies Group)</i>	
11:30 – 12:00pm	What We’ve Lost Along the Geospatial Evolution: Essentials of Map Design <i>Dr. Karen Mulcahy (ECU)</i>	NCEM’s Risk Management Tool Suite (RMT): The Power of a Centralized Data Clearinghouse Realized <i>Hope Morgan (NCEM) & Gray Minton (AECOM)</i>	
12:00 – 12:30pm	The Positive Impacts of Changing Data Culture on Municipal Policymaking <i>Robert Cerrato (City of Charlotte)</i>	Providing Accela Transparency <i>Landon Patterson (Cabarrus County)</i>	
12:30 – 1:00pm	Conference Closing Session – Grand Ballroom NCAUG Board		

Esri Hands-On Learning Lab Open
Dudley Room (3rd Floor)

8:00am – 12:00pm

Hands-On Learning Lab



Dudley Room (3rd Floor)

Hours of Operation

Wednesday Sept. 18: 8:00am – 1:00pm
Thursday Sept. 19: 8:00am – 4:30pm
Friday Sept. 20: 8:00am – 12:00pm



Are you looking for GIS training opportunities? If so, then you're in luck!

NCAUG, in partnership with Esri, is excited to offer the Esri Hand's-On Learning Lab (HOLL) once again at the 2019 conference. The HOLL features ready to use computer stations, provided by Esri, and a catalog of FREE online GIS training courses. Each course is roughly 1 hour long, and you can take as many as you like!

Choose from the course list below:

Course Name	Course Description
Getting Started with GIS	Learn basic GIS concepts using ArcGIS Online to access and use public GIS content, create and manage an online map, and work with analysis tools.
Learning the Fundamentals of ArcMap	Practice common GIS tasks including data management, display, analysis and map layout using the Esri ArcMap application.
Getting Started with ArcGIS Pro	Explore common GIS workflows using Esri ArcGIS Pro including mapping, editing, geoprocessing, and visualization using simultaneous 2D and 3D layouts.
Storing Data in the Geodatabase	Master the Esri geodatabase data model. Topics include geodatabase structure, feature classes, subtypes, relationship classes, and topologies.
Constructing Points from Address Data	Locate customer locations and map efficient delivery routes using feature classes.
Importing CAD Data	Convert Computer-aided design (CAD) datasets into features stored in the Esri geodatabase model.
Spatial Reference and Data Alignment	Verify that both the geographic coordinate system (GCS) and the projected coordinate system (PCS) of your data are correct.
Editing GIS Data	Use the ArcGIS Pro Edit tab and its tools to create and modify features stored in a geodatabase.
Maintaining Land Records Using Parcel Fabric	Examine the parcel fabric data model and editing environment.
Modeling Transportation Networks	Compare how the various ArcGIS Network Analyst network solvers resolve transportation problems based on a variety of considerations.
Performing Image Classification	Experience using the Image Classification Wizard to assign classes to the pixels in a remotely sensed image.
Finding the Best Location	Utilize cell-based raster data to find the most appropriate space to locate a vineyard.
Examining Patterns in Your Data	Apply ArcGIS spatial analysis tools to examine both the data distributions and patterns in the spread of dengue fever over a six-week span in Pennathur, India.
Displaying Data in 3D	Gain some familiarity with both creating and visualizing 3D data in ArcGIS Pro.
Creating Maps for Presentation	Acquire the skills to produce presentation quality maps using basic cartographic design principles.

Hands-On Learning Lab



Dudley Room (3rd Floor)

Hours of Operation

Wednesday Sept. 18: 8:00am – 1:00pm
 Thursday Sept. 19: 8:00am – 4:30pm
 Friday Sept. 20: 8:00am – 12:00pm



Choose from the course list below (continued):

Course Name	Course Description
Sharing GIS Content Using ArcGIS Online	Explore ArcGIS Online workflows for creating online data, performing visual analysis, configuring a web map, and sharing the results.
Generating Custom Web Applications	Create and configure web maps using both web app templates and Web AppBuilder for ArcGIS.
Telling Your Story with Story Maps	Inform, engage, and inspire people with a story told combining maps with narrative text, images, and multimedia.
Performing Analysis with ModelBuilder	Automate and document your spatial analysis and data management processes using a visual programming language.
Using Tasks in ArcGIS Pro	Configure a set of steps that guides the user through a workflow or process in support of best-practice workflows, efficiency or tutorial steps.
Automating Workflows Using Python	Explore the Python scripting language and its usefulness for automating ArcGIS Pro workflows.
Using Business Analyst Web	Combine demographic, consumer, and business data to perform on-demand analysis and create presentation-ready reports and maps.
Discovering Patterns Using Insights for ArcGIS	Learn to use Insights for ArcGIS to explore data, discover patterns, and derive insights.
Monitoring Activity Using Operations Dashboard	Monitor activities and events in real time using Esri Dashboards.



Presenter Bios & Abstracts



- Notes:**
1. Presenters listed alphabetically by last name, late additions may be out of order
 2. Co-presenters are listed with primary presenters and may not be listed in alphabetical order

First Name	Last Name	Organization	Email	Presentation Title	Presenters Biography	Abstract
Eliza	Baldwin	New Hanover County	ebaldwin@nhcgov.com	The Role of GIS in the Aftermath of Hurricane Florence	Eliza Baldwin has been working in local government as a GIS analyst since 2010. She currently works with New Hanover County.	Post-Hurricane Florence, New Hanover County created a Disaster Recovery Office. This presentation will show how this new department is utilizing geographical information system mapping (GIS) in almost every aspect of recovery.
Michael	Baranowski	ESP Associates Inc.	mbaranowski@essassociates.com	ESRI Terrains in the age of Big Data (Transforming 25 TB of QL1 LIDAR into 165 GBs of ESRI Terrains)	Mike Baranowski is a Geospatial Analyst at ESP Associates Inc in Charlotte, NC. He has been with ESP since 2013 where his expertise includes LIDAR processing and production (Geiger, Traditional & Drone sensors).	The NCFMP LIDAR Program used Geiger Mode technology for the Phase 4 & 5 Collect. Increased point density to USGS QL1 standards challenges the normal approach of using all bare earth ground points to build an ESRI Terrain. With a statistical algorithm thinning process called model key points ESP was able to significantly reduce the point count and maintain a given vertical accuracy within the full resolution point set. This approach keeps the average NC county ESRI Terrain size to just 8.2GB.
Sabina	Bastias	Gannett Fleming	sbastias@gfnet.com	Use of LiDAR derived surfaces to create inputs for the FHWA's Traffic Noise Model 2.5	Sabina Bastias and Carrie Suffern are Air, Noise, and GIS Analysts at Gannett Fleming. They use geospatial analytics to conduct traffic noise analyses on highway projects. They are both recent graduates of NC State University's Master of Geospatial Information Science and Technology program.	Noise analysis is required for all Type I projects in North Carolina and utilizes the Federal Highway Administration's Traffic Noise Model (TNM 2.5). The goal of this project is to derive an algorithm using Light Detection and Ranging (LiDAR) surfaces to help identify changes in terrain that should be included in a traffic noise analysis. Will LiDAR surfaces introduce less error in the identification of topographical features? Does LiDAR expedite the surface features identification process?
Carrie	Suffern					
Dustin	Millsaps	Western Piedmont COG	dustin.millsaps@wpcog.org	Multi-Jurisdictional Code Enforcement using ArcGIS Online and Survey123	Dustin Millsaps is a Transportation Planner with the Western Piedmont Council of Governments and Greater Hickory Metropolitan Planning Organization. He went to Appalachian State University for public administration, regional planning, and GIS. His experience has been running a construction company for 5 years before going into the public sector.	WPCOG began a Code Enforcement Program in January 2019. The IT/GIS Dept. was tasked with creating a web app that could be used to look at layers and locations, create points of violations, and could output Notices of Violation to Microsoft Word. With help from Highland Mapping, we created an app using both Web AppBuilder and Survey123 to accomplish this.
Billy	Rickles		billy.rickles@wpcog.org		Billy Rickles is the Code Compliance Program Manager at Western Piedmont Council of Governments in Hickory, NC. His background includes prior service military, private sector security, law enforcement and construction. He oversees Municipal Code Enforcement, Americans with Disabilities Compliance under Title II for local governments, Stormwater Investigations, and Illicit Discharge Detection & Elimination	
Michael	Blair	Innovate! Inc.	mblair@innovateteam.com	How unique is your search? Dynamically expand your query	Michael Blair is a manager in the IT / GIS Division of Innovate Inc., headquartered in Washington D.C. with remote staff throughout the United States, where he serves as a digital strategist and geospatial developer. Michael brings nearly 30 years of IT and geospatial expertise to this role where he supports the full stack enterprise deployment and implementation of geospatial solutions, whether it be in system, network and server architecture, geospatial enterprise software deployment, database management, application development, geospatial data analytics and training.	The Query widget is great for predefined searches, however, what do you do when you want to find data across multiple attributes and many unique values per attribute? Innovate! solved that problem by developing a custom tool to make use of a unique value data query to serve the values dynamically through a web service. The tool then consumes the response and builds a multi-selection search interface for the user to be able to select individual field values across multiple fields. To expand the tool's reach and use, we added a geographic filtering function that allows the user to define an area to search against in addition to the field values. See how your search can be unique too!
Adam	Carnow	Esri - Charlotte, NC	acarnow@esri.com	The Underutilization of GIS & How To Cure It	Adam Carnow is a Community Evangelist. He is a keynote speaker, thought leader & technology evangelist. He inspires customers to maximize their ROI in ArcGIS. Adam has 25+ years of experience. He holds a BA in Geography, & a MA in Urban & Regional Planning from the University of Florida.	When most non-GIS professionals hear "G-I-S", they think "M-A-P". Now that GIS is a location intelligence platform, the underutilization of it is critical and career-limiting. As a GIS professional, your purpose is to do more than make maps. It is vitally important that you proactively evangelize and market all of the GIS capabilities. This presentation will provide strategies on how to spread the understanding and full value of GIS across your organization.

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Robert	Cerrato	City of Charlotte	rcerrato@charlottenc.gov	The Positive Impacts of Changing Data Culture on Municipal Policymaking	I currently work as the Data Program Manager in the Office of Data and Analytics for The City of Charlotte, North Carolina. My primary responsibilities are: to establish data governance, innovate data usage, facilitate information sharing, and guide the use of shared data across the organization.	GIS applications work no matter what data they are pointing at, we know that application is only as good as the data input. This presentation will illustrate how a data culture change can lead to positive change and trust in GIS as a tool for decision-making. Additionally, how a good data culture can proliferate the use of GIS and data in all levels of an organization. How we started, where we are in the process, and where we are going. And of course, a GIS application demonstration!
Kathi	Cotney	NCDIT	kcotney@ncdot.gov	Planning a GIS Service Catalog – A new way to engage customers and ourselves	Kathi Cotney and Sarah Wray both work for the NCDIT Transportation Division's GIS Unit.	The NCDIT-T GIS Unit is changing how we engage customers for Incident Management and Service Requests. This presentation focuses on the initiative to use an enterprise system to implement that change. Currently the GIS Unit handles hundreds of customers reported incidents and service requests each year, and this initiative will ultimately deploy incident management for at least 5 enterprise software solutions and 10 primary service lines offered to customers.
Sarah	Wray		sbwray@ncdot.gov			
Ethan	Credle	Geographic Technologies Group	ecredle@geotg.com	GreenCityGIS – Leveraging Esri's Suite of Application's within Parks and Rec Departments	My name is Ethan Credle. I am a GIS Project manager for Geographic Technologies Group. My days consist of developing/implementing solutions for our clients and overseeing staff, thus ensuring our clients receive top quality services. Lastly, I am a proud ECU alumni with a B.S in Applied Geography	I will present how Parks and Recreation departments can leverage Esri's suite of applications to capture park assets, create Operation Dashboards, leverage Story Maps, Park Locators, and Viewers, and implement Workforce for ArcGIS to make every day workflows and public outreach more efficient. I will also discuss the importance of a database design and what Parks and Recreation departments need to take into consideration in order to get the most out of their data and application deployments.
Skip	Daniels	City of Greensboro	anthony.daniels@greensboro-nc.org	Greensboro Fire SAR Assessment Application	Skip Daniels is a GIS Application Developer.	The app is a combination of a Survey 123 and an AGOL Dashboard to replace a paper survey. After hurricanes Florence and Michael, GFD and GIS teamed up to accomplish this task. We started with a survey by the IAFC as a template and made major improvements to be more compatible with local use. In March 2019, large-scale wide-area search exercise used the new app. Overall it was very successful with approximately 30 teams from all over the country and reps from other countries utilizing the app.
Chris	Susi				Chris Susi is Greensboro Fire Battalion Chief - Special Operations Division	
Carrie	Sigrist	ESP Associates Inc.	csigrist@espassociates.com	FIMAN-T: A New Tool for NCDOT's Management and Response to Flood Impacts to Transportation Assets	Carrie Sigrist is GIS Manager at ESP in Raleigh. She has 10 years of GIS experience, with a focus on floodplain mapping and hazard visualization.	To assist NC Department of Transportation (NCDOT), ESP is developing FIMAN-T, a web-based tool used to provide DOT officials and other emergency stakeholders real-time and forecasted flood inundation /depths along roads, bridges and other NCDOT assets. This presentation will review the processes used to build the database and application and will present a demonstration of how NCDOT plans to leverage this tool for more effective response and road closure/opening operations.
David	Key		dkey@espassociates.com		David Key serves as Director at ESP and has 28 years of experience. He has served as PM for the NC Floodplain Mapping Program for 19 yrs. His recent focus has been the development of the FIMAN flood warning application.	
Scott	Davis	NCDOT	sdavis@axiomenvironmental.org	The Highs and Lows of Tidal mapping. Come 'sea' the tidal dataset developed as part of NCDOT ATLAS.	Scott is the lead for the SWEEPing Environmental Discipline of NCDOT project ATLAS. He is an NC native with a 15-year background in field studies, stream and wetland delineations, protected species surveys, and permitting that helps guide planning for a wide range of environmental modeling projects.	Few places are as important to North Carolina or as dynamic as waters subject to the tides. Detailed planning is critical to the health and safety of the coast and its residents, but our system of inlets and varied topography make these fluctuations difficult to quantify and model locally. The NCDOT ATLAS project incorporated water and wind data with QL2 LiDAR to identify these areas and their relationships. Covered topics: NCDOT ATLAS; Modeling, Wind, Water, Tides, Flooding, QL2 LiDAR.
Jaret	Demcher	Gannett Fleming	jdemcher@gfnet.com	Incorporating the use of GIS into Noise Modeling	Jaret Demcher, ENV SP is a Noise & GIS Analyst at Gannett Fleming. Mr. Demcher Utilizes GIS applications to help streamline and improve accuracy of his noise models.	This presentation would identify how GIS is currently used to build noise models and how GIS will be incorporated into a newer noise modeling program that utilizes a GUI that can be added to Arc Desktop to aid in the building of noise models.

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Darshan	Divakaran	NCDOT	ddivakaran@ncdot.gov	NCDOT UAS Program Office update	Darshan Divakaran is a UAS technology evangelist with expertise in unmanned and manned aviation, flight operations, airborne safety, remote sensing, geospatial analysis and program management.	NCDOT plans to educate folks on drones and GIS highlighting updates of 2019
Ryan	Dugger	HDR	ryan.dugger@hdrinc.com	Modeling Endangered and Threatened Species with ArcGIS and Machine Learning for NCDOT Project Atlas	Ryan Dugger has been with HDR as a GIS Analyst since July of 2018. He has 8 years of ArcGIS software experience and just over 4 years of professional GIS experience. (Should be GISP by conference time)	Threatened and endangered species modeling is a multi-firm effort aimed to model potential habitats for the NCDOT Project Atlas using GIS. In my proposed presentation, I will discuss the steps that were taken to gather data, pre/post process data, model potential habitats, and field verify our models. Many of the GIS tools and processes that were used for creating and confirming our models include: ArcGIS 10.6 and below, Modelbuilder, Collector, ArcPro, GRASS, QGIS, R, and Python.
Peter	Erlenbach	Maser Consulting	perlenbach@maserconsulting.com	Mobile & Web GIS Applications: Improving Data Collection and Operation & Maintenance (O&M) Practices	Suzanne Zitzman, GISP –Suzanne is the Director of GIS Services at Maser Consulting, providing services to clients that maintain the operation of utilities at their organization Peter Erlenbach – Peter is a GIS Technician at Maser Consulting, assists with Survey and GIS workflow using ESRI software	Learn how local governments and utility authority entities have incorporated Esri Web Applications and Maps to assist them with managing O&M practices for their water distribution system. Learn how these applications assist in meeting federal and state regulations. See how New Jersey's Water Quality Accountability Act (WQAA) mapping and reporting requirements are met using Esri. Take away time saving tips on using Esri's suite of tools to make your O&M process easy.
Miguel	Fernandez	Piedmont Authority for Regional Transportation	miguelf@partnc.org	Transit Planning Using Operations Dashboards	As a Transportation Planner for the Piedmont Authority for Regional Transportation (PART), my position focuses on data visualization and managing trip data. I graduated from UNCG with a geography degree focusing on GIS in 2018.	Transit planning is a long, multi-step process. PART utilizes survey results, LEHD data, and ridership data in our process. Using Operations Dashboards, all of the data is available to the staff through interactive maps and tools. PART has created a multi-tabbed Story Map with various dashboards looking at our market areas and LEHD data. Stand alone dashboards for performance measures and comparing travel times on public transit and cars also aid in the planning process.
Richard	Fogleman	AECOM	richard.fogleman@aecom.com	Hurricane Florence – NCEM's Disaster Data Preparedness & Risk Response Support Efforts	Mr. Fogleman is responsible for directing technology implementations within the GIS department. He brings over 21 years of experience with North Carolina Floodplain Mapping Program & FEMA floodplain mapping projects as well as focused experience in GIS administration and workflow development.	For Hurricane Florence in 2018, North Carolina Emergency Management (NCEM) effectively organized and applied its vast data resources ahead of the storm in order to provide risk assessments and data analyses for the impending planning and response efforts. The fast-paced compilation and communication of results, utilizing the most up-to-date multi-scenario hazard data, infrastructure data and reports was the key to a well organized and effectual response before, during and after the event.

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Jay	Fowler	Esri	jfwlower@esri.com	Leveraging ArcGIS Solutions in Your Organization - Esri's Election Solutions and Others	Jay Fowler is a Solution Engineer specializing in government. He connects with GIS users in North Carolina, South Carolina, and throughout the Southeast. Jay attended the University of South Carolina receiving a Bachelors in Media Arts with a minor in Geography and a Master of Science in Geography.	This session will provide an overview of ArcGIS Solutions and the collection of maps and apps for ArcGIS users. During this session, Esri's Election Solutions will be reviewed as well as other ArcGIS Solutions. The solutions reduce cost, time and complexity required to address operational needs and enable agencies to deliver better service to the public. Understand how to streamline workflows in your agencies and address strategic initiatives like performance management and public engagement.
				ArcGIS Apps for the Field - Optimize fieldwork		ArcGIS includes a suite of mobile field apps to help you collect data, navigate to locations, coordinate assignments, and monitor field operations. Learn how Workforce for ArcGIS works together with Navigator for ArcGIS, Collector for ArcGIS, Survey123 for ArcGIS, Explorer for ArcGIS, and Operations Dashboard for ArcGIS to optimize fieldwork.
				ArcGIS Hub - Share, communicate, and collaborate		ArcGIS Hub helps communities achieve goals and initiatives faster and more effectively. Built on the ArcGIS platform, Hub maximizes data sharing, communication, analysis, and collaboration. This session describes how organizations leverage ArcGIS Hub to support a variety of programs, manage projects, measure performance goals, and share results with constituents. During the session, you will learn how to build a Hub site and manage your Hub initiatives.
Jamie	Hammermann	NCEM	jamie.hammermann@ncdps.gov	ArcGIS Enterprise Administration for Peak Volumes: Lessons Learned	Geospatial Developer and Enterprise Administrator	Lessons Learned in ArcGIS Enterprise Administration for Peak Volumes during a major hurricane.
Brian	Hart	City of Gastonia/Two Rivers Utilities	brianh@tworiversutilities.com	City of Gastonia Looks to the Future of GIS with Valve Exercising Program	GIS Analyst with Two Rivers Utilities, the City of Gastonia's municipal-owned water utility	How City of Gastonia/TRU is utilizing GIS in our Valve Exercising Program to update our water network. We had a cover story written by EOS (maker of Arrow line of GNSS receivers) about our efforts. It was also just selected to be featured in ESRI's Local Govt Newsletter in the Fall.
Matt	Hogan	AECOM	matt.c.hogan@aecom.com	Innovation in Indoor Data Collection using Mobile Handheld Laser Technology	Matt Hogan, GISP, GIS Manager and Site Lead for AECOM's Wilmington NC Office	Using portable, handheld laser technology and mobile GIS, AECOM's North Carolina based Information Management Solutions team is molding the future of indoor data collection suitable for Facilities Management (FM) software, GIS, ArcGIS Indoors, or Building Information Modeling (BIM) at a fraction of the cost of traditional methods.
Stephen	Strain		Stephen.Strain@aecom.com		Stephen Strain, GISP, GIS Project & Field Operations Manager, AECOM's Morrisville NC Office	
Travis	Howell	WithersRavenel	Thowell@withersravenel.com	Land, Air, and See Remote Sensing in GIS	Travis Howell has been working with WithersRavenel for 3 years is a Remote Sensing Project Manager who leads the UAS Photogrammetry and LiDAR operations.	Utilizing Remote Sensing tools, such as RC bathymetric boats, terrestrial LiDAR, UAS LiDAR, and UAS Orthophotography to maximize data collection and efficiency within GIS for Engineering designs.
Andy	Kiley	NCDEQ	karen.eggars@aecom.com	Making headway with headwater! How a Statewide Surface Waters dataset was created under NCDOT ATLAS	Andy is an Environmental Program Consultant with the Headwater Streams Spatial Dataset program. He has over 20 years leveraging surveyed and remotely collected data with spatial analysis to model, design, and map wetlands and streams.	Thirty years ago, digital representation of surface waters was based on USGS 1:250k Topo Maps and discussion of LiDAR derived hydrography was at least fifteen years away. But in 2006, an effort to develop predictive models of headwater stream origins began with isolated pilot sites and eventually 7 level 4 ecoregions were modeled. In 2019, as part of the NCDOT ATLAS, 1000 stream origins were mapped leading to the creation of a local resolution statewide hydrography dataset with 70+ attributes.
Karen	Eggars	AECOM			Karen is a GIS Specialist with over 16 years experience.	
Brett	King	City of Havelock	eddy.b.king@gmail.com	Hurricane Florence – Discovering Atypical Flood Areas	My name is Brett King and I am a lifelong Cartographer. Finding a love of geography thru Boy Scouts, led to a career in GIS. Starting out in local government, I have been working in that sector for over 20 years and continue to enjoy serving the public.	Hurricane Florence formed a combination of conditions, storm related and man-made, which left many residents of the City of Havelock, NC still between a rock and wet place. This scenario spot-lighted several developments build in areas with atypical hydrologic features; not being in a Special Flood Hazard, but yet subject to sever flooding. Using GIS to identify these topology dangers, I seek answers from my earth science community to help these citizens.

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Jason	Marshall	GTG	jmarshall@geotg.com	From a Yugo to a Ferrari —The Roswell GIS Story	Jason Marshall has over 12 years of GIS experience and provides his technical expertise for GIS Needs Assessments and Strategic Plans for clients. He holds a Master of Arts in Applied Geography with a Concentration in GIS from the University of North Carolina. His professional experience includes serving the City of Greensboro, NC as their GIS Application Developer.	Like many cities, Roswell, Georgia implemented GIS but didn't quite know what to do with it. Having used GIS disjointedly for years, city leaders realized there had to be a better way. After a GIS Strategic Plan identified the path forward, Roswell embraced full implementation with a complete suite of tools for police, planning, parks and recreation, and public works, which included public interfaces, a 3D representation of downtown, and integration with all IT systems. This presentation will highlight how Roswell went from having virtually no GIS to an award-winning site.
Dawn	Maticic	Esri	dmaticic@esri.com	Maximizing your Esri Enterprise Agreement Investment	Dawn Maticic is an Account Executive for the Esri Local Government team and is located in Charlotte, NC. With over 20 year of GIS experience, Dawn is passionate about helping organizations utilize the ArcGIS platform to improve workflows and enhance data driven decisions.	If your organization has an Enterprise Agreement with Esri this session is for you. During this session, you will learn how to maximize your investment. Discover capabilities currently included in your Enterprise Agreement. Learn new strategies to help you plan for expansion and build a scalable system that aligns with your business objectives.
Gray	Minton	AECOM	gray.minton@aecom.com	NCEM's Risk Management Tool Suite (RMT): The power of a centralized data clearinghouse realized	Gray Minton is a Vice-President and Technology Solutions Manager for AECOM in Morrisville, NC.	NCEM's Risk Management Tool (RMT) is a web-based suite of tools designed to provide enhanced mitigation planning, preparedness assessment, and resiliency assessment capabilities to communities. This web-enabled system is three unique tools in one, all based on the same core geodatabase. This new RMT GBD functions as a data clearinghouse feeding multiple unique applications such as the Hazard Mitigation Planning Tool, the Resiliency Assessment Tool, and the Preparedness Assessment Tool.
Hope	Morgan	NCEM	hope.morgan@ncdps.gov		Hope has been working with Remote sensing technologies for 20+ years. Hope has been working with Emergency Management for 12 years. She is working with the State Geographic Information Coordinating Council on the Working Group for Enhanced Emergency Response. With the goal of appropriate data for Emergency incidents as well as GIS assistance in the event of an activation. She is also managing the Statewide Lidar Collection as well as the State Emergency Response application for first responders.	
Karen	Mulcahy	Department of Geography, Planning and Environment, East Carolina University	mulcahyk@ecu.edu	What we've lost along the geospatial evolution: Essentials of Map Design	Dr. Karen A. Mulcahy has a BA and MA of Geography at Hunter College in NYC and a Ph.D. in Earth and Environmental Science at GSUC CUNY. She has worked in a variety of settings but has spent most of her time teaching Geography, GIS, GPS, and Cartographic courses at ECU.	30 years ago, cartographic training focused on the art and science of mapmaking and was a standard offering in Geography programs. Those with access to making maps was limited. Now geospatial courses focus on the tech and analytical addressing issues of digital concerns, and access to mapping has extended to all. While gaining an ease of map-making and volume of maps, we lost quality. A thoughtful approach and basic guidelines go a long way to effective and aesthetically pleasing products.
Landon	Patterson	Cabarrus County	lrpatterson@cabarruscounty.us	Providing Accela Transparency	Landon Patterson is a business analyst supporting Public Safety/GIS within Cabarrus County. Prior to his role at Cabarrus County, Landon worked for 5 years in the non-profit disaster relief field.	This session will highlight an ArcGIS dashboard application that enables Cabarrus County to turn a pile of Accela data into useful visualization that provides insight into the plan review process.

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Wendy	Peloquin	GISinc	wendy.peloquin@gisinc.com	Getting Started with Esri's GeoEvent	Wendy is the East Coast Business Development Manager for GISinc's State and Local Government team. She has a Bachelors Degree in Geography/GIS and a Masters in GIS Administration. She is a Certified GIS Professional and is currently serving on the URISA International Board of Directors.	This presentation will help you understand what GeoEvent is, where it lives in Esri's platform, and how to leverage it for your specific business needs. Topics include: sensors and GeoEvent, social context and implications, ROI for GeoEvent, Integrations (e.g., IoT, sensors, Waze), use cases, and how to get started.
				Inside ArcGIS Indoors: How to implement Esri's latest product for connected workplaces		In this session we will review ArcGIS Indoors data model, system requirements, and dependencies. We will explain how the extended Pro tools are used to create and publish the Indoor network for wayfinding. We will show the Esri web templates and mobile app that help users better utilize their environment.
Narcisa	Pricope	University of North Carolina Wilmington	pricopen@uncw.edu	Enhancing socio-ecological resilience in low elevated coastal zones subject to recurrent inundation	Dr. Pricope is an associate professor of geography at UNCW. She works on applied questions at the intersection between land systems and watershed science and uses spatio-temporal modeling to quantify and disentangle the roles of human decision-making and environmental changes.	We work with stakeholders to create actionable resources to help build resilience at multiple scales in vulnerable coastal communities. Testing our vulnerability model against actual inundation extents resulting from Hurricane Florence, we show how we can merge modeling efforts with needs-based digital tools aimed at enhancing resilience by co-designing planning and adaptation strategies with communities in areas that suffer from repeated catastrophic inundation events.
Tiffany	Puett	Duncan Parnell Inc	tiffany.puett@duncan-parnell.com	ArcGIS Online: Tips on Managing Users and Data	Tiffany Puett is a GIS Services Coordinator & Trainer with more than 16 years of experience with Esri products. Her focus is on data management, GIS support & Trimble's mapping solutions. Certified GISP, Esri Desktop Associate & Trimble Trainer, Ms Puett is an alumnus of Appalachian State University	ArcGIS Online is a powerful and rapidly evolving platform that you can use to store, gather, visualize and analyze maps and layers in the cloud. If you add to that the enhanced capabilities of new user types, roles, and categories, the amount of flexibility and number of choices start to become overwhelming. In this session, you will learn tips on how to store your data online and, once stored, how to manage, update, and organize it effectively.
Brandon	Saunders	Highland Mapping, Inc.	brandon@highlandmapping.com	Utilizing AWS for Custom ArcGIS Web Applications	Brandon has been with Highland Mapping since 2015 and has much experience with a variety of GIS project work, including data creation, compilation, conversions, database management, cartography, and analysis. He is an expert GIS editor with all sorts of data.	In 2019, Highland Mapping implemented a custom ArcGIS for Server Web Application for Martin County, NC. Since Martin County lacked robust web-hosting infrastructure and Highland Mapping could not directly host the site, AWS was chosen as the platform for hosting the app. This presentation will discuss all the relevant challenges, including the process of implementing the site, licensing issues, and how the data are updated from the County to the AWS cloud.
Ben	Shelton	NC Center for Geographic Information and Analysis	ben.shelton@nc.gov	NC Orthoimagery Program Future and Technical Tips/Tricks	Ben is a GIS Project Manager for the NC CGIA. Ben has over 13 years of experience in the GIS industry working with local, state, and federal agencies. He has a Bachelor's Degree from Old Dominion University and a Master's in GIS from Penn State University.	The NC 911 Statewide Orthoimagery program is coming into its' third statewide cycle since 2012. This presentation will highlight some of the improvements over the past few years and will discuss what is coming up with the next statewide cycle that will begin in 2020 in the Coastal region of the state. There will also be some instructional workflows on how to use imagery in ArcGIS Pro with both local data and streaming services.
Garrett	Shields	Wood	garrett.shields@woodplc.com	In the Eye of the Storm: Leveraging GIS for Safety, Mobility and Connectivity	Garrett Shields works as a Senior GIS Manager for Wood's Water, Geospatial & Technology Group in Raleigh, NC. He also serves as the National Program Manager for Wood's UAS Program. He is a member of the NCAUG board and serves on the technical committee for NC ASPRS. He is also a member of AUVSI.	In the immediate aftermath of Hurricane Florence in North Carolina, the NCDOT was tasked with determining the location, severity and duration of flood waters impacting major roads in the state. Using Wood as a partner, NCDOT began a real-time GIS mapping effort to identify specific flooding threats to roads. Following the storm, NCDOT continued leveraging GIS to study storm impacts and determine the feasibility of improvements in mobility and connectivity to our major roads in eastern NC.
Matt	Lauffer	NCDOT	mslauffer@ncdot.gov		Matt Lauffer works as the Assistant State Hydraulics Engineer for the NCDOT Hydraulics Unit and has been with NCDOT for over 20 years. He is responsible for managing all aspects of hydraulics and hydrology for Strategic Transportation Improvement Program (STIP), and Operations support for Central Region of State (25 Counties) and Statewide Highway Stormwater Program. He is also responsible for consultant coordination, design-build, and in-house design projects. He provides expert witness services and serves as a Hydraulics Unit Research representative.	

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Mike	Sweeney	Esri	msweeney@esri.com	Mosquito Surveillance using Survey123 for ArcGIS	Mike Sweeney works as a Solution Engineer in the Charlotte regional office of Esri. He has over thirty years of GIS implementation experience in many diverse application areas.	The Centers for Disease Control (CDC) manages a program called MosquitoNET for the surveillance of mosquito populations. Most users collect mosquito trap observation data manually. We have turned this laborious process into a streamlined workflow using mobile tools that allow for one-time data entry. By using these tools we also get the benefits of ArcGIS data analysis tools to plan treatment and eradication plans. The data is formatted into the CDC data standard for submission to the CDC.
Katie	Talavera	Environmental Services, Inc.	k80kattal@gmail.com	Modeling Potential Habitat with LIDAR	I have been an environmental consultant for 16 years, working mainly in ecology.	The presentation would discuss methods of integrating LIDAR data into modeling for potential habitat. A Red-cockaded woodpecker (RCW) model has been created with the intent of identifying potentially suitable foraging and nesting habitats for this endangered species.
Jeff	Thomas	City of Wilmington	jeff.thomas@wilmingtonnc.gov	Mapping Zoning History	Jeff Thomas is a GIS Analyst working for the City of Wilmington's Department of Planning, Design, & Transportation.	Wilmington's Planning staff reviews dozens of cases per year, each of which requires a thorough examination of past and present zoning at the site in question. Currently this requires a tedious search process to find related documents, but a project has begun to greatly simplify this search. It will be a fulfillment of a long-desired ability to simply click on a map to get a list of all zoning changes that have ever happened at that spot.
Peter	Thompson	Duncan-Parnell	peter.thompson@duncan-pannell.com	Esri's Collector, is MSL possible? A case study with Greensboro Water Resources With Zack Peterson	Peter Thompson is a Utility Solutions Rep with nearly 10 years of GIS experience. He has worked for numerous organizations, including on DoD contracts with Harris Corp, SC DHEC, and as GIS coordinator for Lee Co, AL. Today, Peter focuses on geospatial solutions for utilities in the Carolinas.	Esri's Collector' popularity continues to grow, because of its ease-of-use and low-cost deployment. Collector does not provide high-quality and accurate location data. With GNSS receivers we can capture good location data horizontally, but what about vertically? This presentation will detail what MSL is, it's needed and how Greensboro Water Resources has implemented MSL in their Collector deployment. We will focus on the acquisition of reliable, accurate MSL with a mapping-grade receiver.
Zach	Petersen	City of Greensboro	zachary.Petersen@greensboro-nc.gov		Zach is a GIS Analyst for the City of Greensboro. He provides high level GIS administrative support to Water Resources Engineering and Stormwater Divisions for the City of Greensboro. Zach manages Water Resources internal and enterprise-wide GIS data. In addition, the analyst designs GIS databases for the use throughout the Department that track and store water, sewer, and stormwater inventory assets.	
Rick	Wallace	Quantum Spatial Inc.	rwallace@quantumspatial.com	Leveraging Agile software development methodologies to manage complex GIS projects	Cherie Jarvis is the Enterprise GIS Practice Lead at Quantum Spatial Inc., where she specializes in leveraging an agile approach to geospatial projects. Cherie has more than 20 years of experience in a variety of information technologies, including data management, software development and GIS.	The same principles that apply to software development also apply to developing a GIS. The system must be designed, developed and deployed. By leveraging the Agile software development methodology, project teams can manage the many aspects of a GIS project while iteratively delivering value to stakeholders. This presentation will focus on the similarities between software development and GIS project development and discuss how Agile can be used to manage risk and deliver value
Davis	Wildman	Eos Positioning Systems	davis@newlandgeo.com	High Accuracy Workflow for GIS Data Collection	Davis Wildman is a highly motivated and innovative Geospatial Industry professional with over 25 years of application consulting and sales experience with GNSS & GIS solutions.	There's no reason why GIS data accuracy needs to be only 'good enough'. A question from the GIS community we often hear is 'why can't we have accurate elevation data?' And to this we now can answer... 'yes, you can'. This presentation will focus on workflow and solutions that provide high accuracy GIS data collection with greater data integrity for legacy geo-database development.
Eric	Wilson	GeoDecisions/ NCDOT GIS Unit	egwilson1@ncdot.gov	NCDOT Project ATLAS - Project Delivery Tools and Data	Eric works for GeoDecisions as a GIS Technical Project Manager. Eric has worked in the field of GIS for over 20 years. He leads the technical team in charge of the NCDOT Project ATLAS implementation. He is experienced in GIS, Analytics, Business Process Analysis, C#, ASP.Net, Python, and SQL Server.	The North Carolina Department of Transportation (NCDOT) is currently modernizing its approach to the project delivery process. The presentation will briefly highlight what Project ATLAS is, its purpose, and discuss in detail the 4 major components of the project that were designed and implemented over the course of the past year. The presentation will also discuss how the application allows project managers at NCDOT and consultants working with NCDOT to perform their tasks better.

Presenter Bios & Abstracts



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Joey	Wilson	EagleView	joe.wilson@eagleview.com	Use of Oblique Imagery in Local Government	Joey Wilson has enjoyed his extensive GIS career that spans nearly 25 years. He began his career in the military as a United States Navy SEABEE. After honorably serving our country, Mr. Wilson entered college at UNC Charlotte (Go Niners!) and was selected to work as a GIS intern with Mecklenburg County in 1995 and with ESRI in 1996. After earning his B.S. Degree in Environmental Science, Mr. Wilson was recruited by ESRI-Charlotte in 1997 to serve the GIS community in the State of South Carolina. He has also held GIS positions as a consultant, developer, trainer, and GIS Manager. Mr. Wilson currently serves the Carolinas as the EagleView District Manager for Pictometry imagery captures.	Oblique imagery has been utilized by city and county government agencies for nearly 20 years and has been an effective decision-making tool for saving time while improving data accuracy. By leveraging integration capabilities with GIS (geographic information systems), CAMA (computer-aided mass appraisal), CAD (computer-aided dispatch), many government agencies have realized a significant return on investment through the use of oblique imagery. This session will focus on workflow integration examples and web deployment options, as well as partner integrated solutions, change detection, and future direction of high-resolution oblique imagery.
Kathi	Cotney	NCDIT	kcotney@ncdot.gov	Improving NCDOT Traffic Ordinance Spatial Data Publications	Kathi Cotney works for the NCDIT Transportation Division's GIS Unit.	In 2018, NCDOT's began an initiative to develop a solution for publishing ordinance data with greater frequency, more detail, & improved locational accuracy, and enabling self-service access to the public. The new solution will pilot speed limits, truck restrictions & several other ordinances, making these products available quarterly via NCDOT's GO!NC portal. This presentation focuses on the challenges, status of the initiative and anticipated timeline for bringing these products to customers.
Ryan	Koschatzky		rjkoschatzky@ncdot.gov		Ryan Koschatzky is a Senior Analyst for the Data Conversion Group of the GIS Unit at North Carolina Department of Information Technology - Transportation and serves as an LRS Editing and Data Quality subject matter expert. He has been with the NCDIT-T GIS Unit for over 15 years and was involved with the last two major system upgrades (in-house design and Roads & Highways). He has 24 years of experience in GIS, architectural, civil engineering and surveying disciplines and public/private work environments.	
Catherine	Bryant		NCDOT		cbryant6@ncdot.gov	
Rebecca	Bayham	Wood	rebecca.bayham@woodplc.com	Turn Around, Don't Drown: NCDOT's Statewide Initiative to Visualize Road Flooding	Rebecca Bayham is a GIS Developer for Wood in Raleigh, NC. She creates web & mobile GIS applications, Python scripts, and automated tools for clients such as the NC Department of Transportation, the NC Floodplain Mapping Program, and the U.S. Environmental Protection Agency.	Following hurricanes Matthew and Florence, NCDOT identified a growing need for situational awareness about roadway flooding. To assist with public safety and emergency response, NCDOT leveraged existing data to visualize potential roadway flooding statewide. This presentation highlights NCDOT's interactive online road inundation platform.
Jason	Hightower		jason.hightower@woodplc.com		Jason is a GIS Analyst for Wood's Water, Geospatial & Technology Team in Durham, NC where he specializes in GIS analysis for natural hazard risk assessments as well as environmental mapping. He is a graduate of Appalachian State University and avid mountain bike enthusiast.	

NCASPRS Technical Workshop

Bios & Abstracts



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Paul	Badr	GPI Geospatial	pbadr@gpinet.com	Remote Sensed Data and Processing Methodologies for Transmission Modeling	Paul Badr, CP, PPS, PLS, SP is the President of GPI Geospatial, Inc. (GPI) and lives and works in Charlotte, North Carolina. Paul manages and is responsible for the company's profit, sales, training, technical and administrative functions. He oversees staff needs, compliance with State Board Rules, planning, marketing, business development, quality of work, client satisfaction, financial strength, training, and risk management.	This presentation will focus on acquiring aerial LiDAR and Imagery to model energy transmission lines. We will discuss flight planning, triangulation, calibrating and classifying point clouds, mapping and producing Plan & Profile sheets with parcel information as well as PLS-CADD Modeling.
Leila	Beni	NC A&T	lhashemibeni@ncat.edu	Renewable Energy Siting in NC Using Geospatial Methods	Leila Hashemi-Beni is an assistant professor of Geomatics at the Department of Built Environment at College of Science and Technology, North Carolina A&T State University. She holds a BSc. in Civil-Surveying Engineering (Geomatics), a MSc in Photogrammetry and a PhD in GIS. Her research experience and interests span the areas of 3D data modeling, UAV and satellite remote sensing and data analytics, automatic matching and change detection between various datasets and developing GIS and remote sensing methodologies for different applications. She is currently working as a PI/Co-PI on 5 externally-funded projects from the National Science Foundation, NC Collaboratory Policy and Energy Industry.	Identifying suitable locations for the construction of renewable energy sites such as solar or wind farms for power generation requires detailed information, complex decisions and accurate planning. The best sites should be a tradeoff between maximum power achievement, minimal environmental impact as well as project cost. This presentation discusses a geospatial analytical model and database to capture and analyze the business-decision requirements and criteria to identify areas of constraint, and conversely, suitable regions for potential development of solar energy in North Carolina. The geospatial model enables developers and decision makers to quickly and accurately originate and identify sites that will be more economic than others for new power generation.
Sam	Bradtke	UNCW	sdb7595@uncw.edu	Volumetric Change Analysis of A Living Shoreline In Southeast North Carolina Using Drone Imagery	Sam Bradtke is a 2nd year graduate student in the M.S. Geoscience program at University of North Carolina Wilmington. His primary interest is monitor coastal areas and fluvial systems using drone based Digital Surface Model (DSM) and advanced geospatial analysis. He works in the Remote Sensing Research Laboratory (RSRL), under his advisor Dr. Eman Ghoneim and co-advisor Dr. Lynn Leonard studying coastal erosion, volumetric change analysis of a living shoreline as well as shoreline stabilization using unmanned aerial systems (UAV) and GIS geomorphological modeling.	The Intracoastal Waterway (ICW), located along the U.S. Atlantic coast, is a low-energy, estuarine environment which serves as a route for maritime traffic and leisure-boating. Communities along the ICW have installed shoreline stabilization structures to prevent erosion in response to boat wakes. While hardened shorelines, such as bulkheads, do stabilize land directly behind the structure, they reduce biodiversity and do not provide ecosystem services. In this study, drone-based surveys were conducted over a year-long period between July 2018 to June 2019, all at low-tide to increase sediment exposure within the intertidal zone. A DJI Phantom 4 Pro fitted with an RGB sensor provided geolocated images tied in with ground control points (GCPs) to further increase horizontal and vertical accuracy. Repeat surveys were used to develop Digital Surface Models (DSMs) that document the spatially varying elevation characteristics of the study area.

NCASPRS Technical Workshop Bios & Abstracts



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Jamey	Gray	Stewart	jgray@stewartinc.com	ASPRS Positional Accuracy Standards for Digital Geospatial Data: Applications for UAS	Jamey Gray is a Senior Project Manager in Geomatics at Stewart Engineering in Raleigh, NC. He is a licensed surveyor with 15 years' experience and specializes in, UAS, GIS, photogrammetry, and geodetic control survey applications.	The ASPRS Positional Accuracy Standards for Digital Geospatial Data is the latest authoritative standard for determining accuracy estimates for several forms of digital elevation data. The standard should be applied to UAS applications since project size is not a consideration when determining procedures and accuracy levels. This presentation will explain key parts of the standard including ground control accuracy, aero-triangulation results, and validation point requirements for determining the accuracy of a UAS project.
Jon	Sellars	NOAA	jon.sellars@noaa.gov	Using the Cloud: NOAA's Emergency Response Image Processing	Jon Sellars- 16 yrs with NOAA, 14 1/2 as a full-time employee. Graduated from ECU with an undergraduate degree in Biology and a Masters of Science in Ecology. Primary focus at NOAA has been Emergency Response (ER). Co-inventor of oNav™ the navigation system NOAA pilots use to collect oblique and ER imagery. Site built and deployed GPS tide buoy's in Australia in shark and crocodile infested waters, conducted aerial surveys north of the Arctic Circle in Alaska, ate many interesting dishes in Korea and traveled to half the states in the US. Recipient of the 2013 Dept. of Commerce Gold Medal for Hurricane Sandy ER work as well as four NOAA Bronze Medals: 2007 UAS, 2011 Haiti Earthquake ER, 2017 Cloud Computing and 2018 Hurricane Matthew ER.	Over the past several years, NOAA has moved all image processing for emergency response into the commercial cloud. This move was made possible by transitioning from proprietary software running in Windows to open source software in the Linux environment. Discussion will include some of the hurdles and their workarounds.
Joshua	Slocumb	UNCW	jcs1326@uncw.edu	Multispectral Satellite and UAV Remote Sensing with Biogeochemistry to Estimate Salt Marsh Wetland Carbon Sequestration in Wrightsville Beach, NC	Joshua Slocumb is a 2nd year graduate student in the M.S. Geoscience program at University of North Carolina Wilmington. His primary interest is coastal conservation and the integration of space and Unmanned Aerial Vehicle (UAV) remote sensing with biogeochemistry analysis to estimate salt marsh wetland carbon sequestration in coastal regions. He works in the Remote Sensing Research Laboratory (RSRL) and the Biogeochemistry Lab at the UNCW Center for Marine Science under his advisor Dr. Eman Ghoneim and co-advisor Dr. Ai Ning Loh.	Coastal wetlands sustain the highest rates of carbon sequestration per unit area of all natural systems due to their comparatively high productivity and preservation of organic carbon. With the high frequency of coastal storms, the Wrightsville Beach barrier island in North Carolina acts as a buffer, preventing floodwaters and storm surges from reaching the very near mainland. This work investigated the potential impact of current and accelerating rates of sea-level rise (SLR) on organic carbon stocks of coastal wetland habitats of the northern half of Wrightsville Beach using geospatial techniques along with biogeochemistry lab analysis. The results from this study demonstrates the usefulness of integrating biogeochemistry, remote sensing and GIS, remote sensing in monitoring salt marsh wetland carbon sequestration and degradation due to accelerated rates of SLR.

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Here's to 30 more; see you next year!