Elevations Geospatial Summer Series Abstracts

July 28 - August 20, 2020

elevationsgeospatialsummit.org

Presentations

Modernized the National Spatial Reference System (NSRS)

Brian Shaw, Rocky Mountain Regional Advisor, NOAA's National Geodetic Survey

The National Oceanic and Atmospheric Administration's (NOAA) National Geodetic Survey (NGS) has been providing the positioning infrastructure for the nation since 1807 when Thomas Jefferson created the Survey of the Coast. Society continues to learn more about how dynamic our world is, through improvements in technology with satellite based positioning, and other new systems of measurement that did not exist when today's National Spatial Reference System (NSRS) was developed. The world is in constant change and there is a need to track changes in our environment with faster and more accurate observations. This can be accomplished with a modernized NSRS that will provide a precise, consistent and accurate positioning infrastructure that is readily and easily accessible primarily through Global Navigation Satellite System (GNSS) observations. The NSRS will provide the spatial infrastructure for the future of self driving cars, building information models, and improving flood plain mapping for the safety of life and property. The NSRS will be easier and more cost effective to maintain, providing the ability to account for dynamic changes in positioning such as plate tectonics; subsurface ground fluid withdrawal induced subsidence -- in some places inches per year of vertical change; and other geophysical phenomena. This presentation will provide an update of how the future NSRS will improve and what can be done to prepare for this paradigm shift in positioning.

Builder vs Builder: What You Need to Know About ArcGIS Experience

Malaika Penn, Argis

ArcGIS Experience Builder is a new option for generating content quickly for geospatially driven websites. Join Malaika Penn as she explores the strengths (and differences) between custom WebApp Builder options and the New ArcGIS Experience Builder, including a technical demo highlighting the differences. GIS managers and analysts alike will want to check out this talk for takeaways and advice on the best way to make the transition to ArcGIS Experience Builder and when to make the move.

How to do GIS at Home During COVID

Lindsay Walker, ROK Technologies

With our current events, many organizations are facing a sudden dilemma: how to enable their workforce to work from home for an unknown period of time. This comes with many challenges, from financial to logistical. In this talk we will cover some of the ways in which you can recover productivity (and maybe even a little sanity) while working from home. Some topics covered will include the value of virtual workstations, cloud-based license managers and databases, and how you can set them up yourself, why there's never been a better time to start web mapping, and a grab bag of other information on how to reclaim your awesome GIS from home.

Battling Cheatgrass through Lidar and Imagery

John Gerhard, Woolpet

Understanding the distribution of cheatgrass (Bromus tectorum) is key to planning and executing strategies to protect sensitive wildlife and ecosystems. In this presentation, John will discuss how Woolpert constructed a mapping workflow and classification model based on a suite of biophysical variables and independent physical measurements to predict cheatgrass occurrences across the western United States' sagebrush country. He will explain Woolpert's combination of four-band imagery and co-collected lidar data into a robust data cube with derivatives such as slope and canopy height, as well as how field measurement values were used to derive biophysical variables (while removing highly correlated data). Finally, he will show how the workflow yielded a predictive model that accurately determines the probability of cheatgrass cover in the study area.

The Path from GIS Manager to GIS Leader

Adam Carnow, Esri

In order to maximize the impact of GIS in your organization, garner executive sponsorship for GIS, and increase your personal career potential, we have got to shift the conversation from technology to capability, and that capability is Location Intelligence (LI). This presentation will review the 5 pillars of LI (Strategy, Organization, Data & Technology, Culture, Literacy), as well as provide real examples of GIS practitioners that are using these techniques to move up in their organizations and increase the value of their GIS program. It is the presentation version of my 3-part blog series: https://community.esri.com/community/implementing-arcgis/blog/2020/06/01/the-path-from-gis-manager-to-gis-leader-part-1
There's a video version here: https://youtu.be/HgcKbCnk3rU

NG-911: Collaboration, Cooperation, and Collection

Scott Trapolino, Everything is Somewhere

Multifaceted barriers exist within E-911, Emergency Management, Critical Infrastructure Protection, and Elected Officials, which make it difficult for cooperation amongst state, regional, and local entities. This presentation/workshop will address key obstacles, as well as, provide established solutions for collecting data and building cooperative relationships through collaboration. The focus of this presentation will demonstrate how empowering locals is instrumental in creating a grassroots movement utilizing human capital. Also, we will discuss key elements to provide successful NG9-1-1 implementation, such as Statewide Data Standards, Questionnaires for PSAP's, and Required GIS Data.

Meeting the Geospatial Data Challenges of a New Era

Brian L. Soliday and Melissa Ubaldo, 1Spatial Inc.

Meeting the data requirements of new/changing government regulations, such as NextGen911, can prove quite challenging, often requiring many hours of manual data manipulation to deal with misalignment, topological errors, and errors in attribution. Critical layers such as address points, pipelines, road centerlines, and boundaries (e.g. Parcels, PSAPS) as well as CAD (Computer Aided Design) data can prove especially difficult with misalignments, improper attribution and the need for change detection between vintages to manage ongoing updates. This presentation will cover how local and state governments such as Maryland and LA County are leveraging 1Integrate and 1Data Gateway to validate and integrate data sources coming from local jurisdictions or other departments. Learn about the 1Integrate technology underpinning the validation application and how to get your data "fit for purpose" using the 1Integrate application. Also, learn how organizations such as the US Census, State of Nebraska, Arizona Department of Transportation and many other public and private organizations are successfully meeting many of these same challenges by implementing a rules-based approach to deliver enterprise-scale, cross-platform automation to all stages of the data lifecycle.

Navigating the Future of DOT Data Management

Brian L. Soliday and Kevin Sigwart, 1Spatial Inc.

Many DOT's manage their databases in siloed environments based on types of assets (e.g. Pavement, Culverts, Bridges, Roads, etc.) and/or types of data (LRS, GIS, CAD, etc.). However, innovative DOT's want to integrate these systems for improved resource planning and to meet federal guideline submissions like HPMS (Highway Performance Monitoring System) and MIRE (Model Inventory of Roadway Elements). Rarely are these assets managed by one product due to the unique requirements and various business needs of each asset. Forward leaning organizations are implementing workflows and processes to integrate these systems to more seamlessly meet business requirements.

This presentation will focus on how 1Spatial is working at Caltrans to assess their asset management data, identifying potential quality issues that need to be addressed during or before they integrate their asset management data into a resource planning application. This presentation will also cover how 1Spatial is implementing HPMS (Highway Performance Monitoring System) process improvements for several DOTs.

Typically, an annual arduous event requiring a great deal of manual tweaking to get the data just right, this process is being automated using 1Integrate and the HPMS business rules implemented by 1Spatial for the US Federal Highway's Administration (FHWA).

ArcGIS QuickCapture

Dave Vaillancourt, Esri

Check out the newest addition to the suite of Esri mobile tools – ArcGIS QuickCapture is the fastest way to collect field observations. You can quickly record field observations from a moving vehicle while you scout locations, conduct surveys, or assess damage. Send data back to the office for analysis in real time and better decision-making.

ArcGIS Capabilities for Emergency Management

Shelby Hines, Esri

Learn how to apply ArcGIS tools and capabilities to emergency management operations for natural hazards. This presentation will cover patterns of use and customer examples to show field mobility, decision support, and constituent engagement. In addition, look for a demonstration of new capabilities including 3D Flood Impact Analysis and ArcGIS Hub as a collaborative platform for information sharing.

Next Generation 9-1-1, GIS and You: NextGen 9-1-1 Through the Lens of a GIS Professional

Sarah Rollins, DATAMARK

GIS plays an extremely important role in NextGen 9-1-1 systems, a role that is significantly different than how GIS is used in current 9-1-1 systems.

The goal of this session is to clarify how GIS is used in NextGen, and what are the requirements to make GIS data ready for use in the ESInet. We will also cover timelines for adopting NextGen from the GIS perspective, and who is overseeing these efforts.

This session is intended for GIS practitioners currently involved with or anticipating being involved with managing GIS data for NextGen 9-1-1 purposes – or anyone curious about a Public Safety application of GIS.

Industry and Academia: Uniting Forces to Drive Geospatial Innovation

Mike Lane, Hexagon

This is truly an exciting time to be in the geospatial industry. Location-based intelligence has become mainstream across so many different verticals that employing spatial information to solve real-world problems is now the norm, and the possibilities are limited only by imagination. Academia is a driver for industry, and vice versa. When the two collaborate and combine efforts, the outcomes take geospatial innovation to the next level.

In this presentation, I will talk about some of the ways that Hexagon Geospatial is teaming up with academic partners to push the limits even further. Collaborating with universities and other non-profit organizations like the United States Geospatial Intelligence Foundation (USGIF), the Western Indian Ocean Marine Science Association (WIOMSA), and the Youthmappers to get technology into the hands of our eager and creative students has resulted in some great projects. Creating models and apps to use dynamic GIS to supply refugee camps, using crowdsourcing mobile technology to create a smart campus, and developing geospatial apps for sustaining coastal cities are among a few that I will discuss. My hope is that sharing what the collaboration between academia and industry has achieved thus far will inspire even more creativity and spark more ideas for future partnerships and projects.

Trainings

Getting the Most Out of Your UAV Data, Plus Integrating into Survey, GIS and Beyond

Phil Jahns and David Siddle, Frontier Precision

Deep dive into several UAV case studies and the direction we believe data integration is heading. Topics Include:

- Project Management: day-to-day communications, overview, verification, change detection, including from CAD design to final product
    - How to compare and contrast UAV data with Survey / Mapping data when a client does not trust UAV data
- Inspections: Derivative products depending on scope of work and sensors, high resolution, LiDAR, thermal, multi-spectral, etc
    - Beyond a visual inspection: how to compare a CAD design model vs UAV data
- Mining and excavation:
    - Mining industry was an early adopter of UAV technology, see how they are currently using data and future goals for UAV integration

Building and Deploying Field Surveys with Survey 123

Nick Viau, Allpoints GIS

Survey 123 has emerged as a powerful tool-of-choice for many organizations that require form-based field data collection. In this workshop we will learn how to create new field surveys using both the web survey designer and Survey123 Connect desktop app. We will also learn how to deploy the surveys to users via ArcGIS Online. Finally, we will embark on a short field session to learn how to use the mobile app to collect field data. Participants will need a smart-phone, their laptop, and an active AGOL account. Participants are encouraged to team-up to include anyone who does not have these.

Adventures in Lidar Using Arc

Jason Caldwell and Jameson Quisenberry Sanborn Map Company

LiDAR Overview

- Basics of LiDAR
- Project planning
- Collection practices
- Data Processing
- Accuracy Assessment
- Delivery products and formats
- Uses Cases
- Information Technology Infrastructure Requirements (Hardware/Software)
- Derivative Product Creation

ArcGIS Enterprise Topics

David Vaillancourt and Shelby Hines, Esri

ArcGIS Enterprise is Esri's foundational software systems for GIS, powering mapping and visualization, analytics and data management. Join this session for presentations and demonstrations focused on advantages of migrating to ArcGIS Enterprise (from standalone ArcGIS Server), data management concepts, collaboration for sharing feature layers and content from one portal to another, and sites for sharing data, dashboards, and content internally. The base ArcGIS Enterprise deployment enables your organization to take advantage of capabilities covered in this session.