

# STEP THROUGH THE PORTAL



# 2019 SOUTH FLORIDA GIS EXPO

August, 22-23, 2019
PBC Convention Center

650 Okeechobee Boulevard West Palm Beach, FL 33401

# WELCOME

# SOUTH FLORIDA GIS EXPO

The South Florida GIS Expo is an annual conference sponsored by the Palm Beach Countywide GIS Forum. The South Florida GIS Expo serves as a way to foster collaboration, GIS coordination, networking, education and training for the rapidly expanding professional GIS Community in the South Florida Region. The 2019 South Florida GIS Expo represents our 26th year of organizing and facilitating this regional GIS conference.

South Florida GIS Expo Committee
2019 South Florida GIS Expo
August 22-23, 2019
Palm Beach County Convention Center
650 Okeechobee Boulevard
West Palm Beach, FL 33401
www.sfgisexpo.com | www.gisforum.org







#### **SPECIAL ACTIVITIES**

#### Registration

Thursday 8:00 a.m. - 4:00 p.m. Friday 8:00 a.m. - 3:00 p.m.

#### **Exhibit Hall\***

Thursday 12:15 p.m. - 5:00 p.m. Friday 8:00 a.m. to 2:00 p.m.

#### Lunch

Thursday 12:15 p.m. - 1:30 p.m. Friday 12:00 p.m. - 1:30 p.m. Light lunch available in the Exhibit Hall

#### Job Board

Thursday and Friday 9:00 a.m. - 4:00 p.m. Resumes and vacancies can be posted on the Job Board in the Foyer by Registration.

#### **Poster Exhibits**

Thursday and Friday

Categories for posters to be displayed throughout the Expo include Best Project Presentation, Best Analytical Presentation and Best Student Poster. Judging of posters will take place Thursday between 4:00 and 5:00 p.m. Winners will be announced at the Friday lunch break.

There will also be a separate Best of Show Poster voted on by Conference attendees and announced during lunch break on Friday. Ballots will be deposited by the poster area.

\* Note: The Exhibit Hall will open for exhibitor set-up only on Thursday from 7:00 a.m. until 11:00 a.m.







## **Thursday August 22, 2019 Presentations**

8:00 AM – 8:30 AM
Registration Opens/ Continental Breakfast near Registration

8:45 AM
Welcome from SF GIS EXPO Chairs

9:15 AM
KEYNOTE ADDRESS

From Citizens to Scientists: How the USGS Serves Florida Geospatially

Xan Fredericks, GISP
Lidar Coordinator/Geospatial Liaison U.S. Geological Survey (USGS)



10:15 AM - 10:30 AM 15 Minute Morning Break

10:30 AM - 12:15 PM
ESRI

Adam Carnow
Surfing the GIS Waves to Success

12:15 PM Exhibit Hall Opens

12:15 PM – 1:30 PM Lunch in Exhibit Hall







# **Thursday August 22, 2019 Presentations**

1:30 PM - 2:30 PM

Room 2A

Using ArcGIS Online and Asset Management to Manage Landfill Assets

Mark Nelson of Jones Edmunds & Associates

Room 2B

Cost-effective asset collection and faster, better workflows using 3D streetscapes

Danny Hendren and Jennifer Kuntz of CycloMedia

Room 2C

GIS Applications of Hi-Res Statewide
Topo - and TopoBathymetric Data

Al Karlin, Keith Patterson and Melanie Masessa of Dewberry Engineers

Room 2D

**Roundtable Panel Session - Come One Come All!** 

Room 2E

Lidar Data & Supporting Coastal Resilience Planning
Mike Zoltek and Sam Moffat of Woolpert

Room 2F

"Centimeter Accurate GIS on Your iPad"? Not Accurate?

Rich Ash of Eos Positioning

2:30 PM – 2:45 PM 15 Minute Break in Exhibit Hall







# **Thursday August 22, 2019 Presentations**

2:45 PM - 3:45 PM

# Room 2A The Future of Aerial Imagery Carl Decator of Eagleview Technology Corp.

#### Room 2B

Building a 3D GIS environment for next-level, county-wide advancements in analytics, hazard mitigation, city planning and e911

Keith Owerns of Fugro

#### Room 2C

Improving the management and operational efficiency of topo-bathymetric LiDAR mapping in the Florida Keys using eGIS

Russell Faux and Colin Cooper of Quantum Spatial

#### Room 2D

High Accuracy Data Collection with Collector: Is MSL Possible

Jim Robeson of GPServ, Inc

#### Room 2E

Utilizing Trimble eCognition software to update your data with the new Florida Lidar and imagery

Erin McCormick of Navigation Electronics, Inc.

#### Room 2F

Integrating an Enterprise GIS With Third
Party Applications to Enhance Municipal Operations
Tony Yates & Brett Milburn of Langan Engineering

#### 5:00 PM

Thursday Night Social at CityPlace







8:00 AM – 8:30 AM Registration Opens in foyer Hall Way

8:30 AM - 9:30 AM

Room 2A

Connecting People to Information through GIS

Andy Zaletel of Baxter & Woodman

Room 2B

Streamlining Damage Assessment and Response
Using Collector/Dashboards by Eric Blazewicz
Eric Blazewicz and Jeremy Hyames of Palm Beach County

Room 2C

GIS Integration in Urban Development from the Ground Up

Ken Cassel of the City of Westlake and

Kelley Conboy of Florida Technical Consultants

Room 2D

From Darkness into Light: Walking away from the Black Box D. Michael Parrish of South Florida Water Management District

Room 2E

NAPOT: Using GIS to Calculate Lift Station Pump Run Times

Michael Green of the City of Sunrise

Room 2F
How do I do that in ArcGIS Pro?
Mike Sweeney of ESRI

9:30 AM – 10:00 AM 30 Minute Break in Exhibit Hall







10:00 AM - 11:00 AM

#### Room 2A

Hawaii 2018 Eruption: Using ArcGIS Online for Volunteer Efforts

Jim Kirkpatrick of the City of Vero Beach

#### Room 2B

Analytics for Climate Resilience Planning

YKatie Lelis of Broward County

Environmental Planning and Community Resilience

#### Room 2C

GIS 101: Understanding the Fundamentals

John Watterson of Martin County Property Appraiser's Office

#### Room 2D

Developing a Successful Geospatial Internship Program
Nicole Miller and Erika Moylan of
South Florida Water Management District

#### Room 2E

Identifying Canal Flow Restrictions Using a sUAS and a Marine ROV Juan Tobar and Robert Haine of Lake Worth Drainage District

#### Room 2F

Leveraging ArcGIS Solutions in Your Organization -Esri's Election Solutions and Others Mike Sweeney of ESRI







11:00 AM - 12:00 PM

#### Room 2A

One sensor does not fit all: an overview of UAS sensors and payloads for mapping professionals Adam Benjamin of University of Florida and Earl Soeder of GPServ, Inc.

#### Room 2B

Coral Gables Sea Level Rise Impact Planning Tool
Zhaohui Fu, Levente Juhasz, and
Henry Hochmair of Florida International University

#### Room 2C

City of Coral Gables – Smart City Hub and Community Engagement Initiatives Mark Hebert of the City of Coral Gables

#### Room 2D

Creating and Accessing a City Projects Database via ArcReader

Jim Kirkpatrick of the City of Vero Beach

## Room 2E Field First

Michael Low and Waneya Bryant of City of Boynton Beach

#### Room 2F

**Stepping into the Court & Legal Portal with GIS** 

David Rafaidus of Palm Beach County and Robert Schaffer of South Florida Water Management District

> 12:00 PM - 1:30 PM Lunch in Exhibit Hall







1:30 PM - 2:30 PM

Room 2A

Mobile Data Collection Applications - An AEC Firm Case Study
Tony Yates and Brett Milburn of Langan Engineering

Room 2B

A Picture is Worth.... Creativity with Story Maps Terry Toler of Broward County

Room 2C

Feature Layers - Providing Core Functionality across the Services Based Architecture Lee Harding of the Town of Jupiter

Room 2D

Finally - A "Smart" Fire Hydrant Inspection Process for BSO (Phase I)

Bhairavi Pandya of BSO IT Division and

Captain Kevin Bartlett of BSO Fire Department

#### Room 2E

The New Geospatial Open data Portal and streamlining GIS homepage for improved access to the District's Geospatial/GIS products

Alexandra Hoffart and Maryam Mashayekhi of

South Florida Water Management District

Room 2F

Coordinating Efforts in a Decentralized Environment

Melissa Northey of the City of Ocala







2:30 PM -3:30 PM

#### Room 2A

Collaborative Damage Assessment using Collector
Beth Norton of Palm Beach County ISS/GIS

#### Room 2B

Map It Mobile: Integrating Legacy GIS with Modern Data Collection

Leah Newman of Hydromax USA

#### Room 2C

Finding Data to complete water resource evaluations for water use permit applications

Hope Barton of South Florida Water Management District

#### Room 2D

Long-term Change Detection of Jupiter Inlet Lighthouse ONA Sudhagar Nagarajan of Florida Atlantic University

#### Room 2E

What Every New GIS Manager Should Know Randal Krejcarek of Spatial Focus, LLC

#### Room 2F

Mapping and Modeling Mangrove Damages from Hurricanes in South Florida Caiyun Zhang of Florida Atlantic University







3:30 PM - 4:30 PM

#### Room 2A

The 2020 Census: Geographic Partnership Opportunities
William Curry, Geographic Coordinator - Atlanta Regional Census Center

Room 2B

Helping Engineers Help Themselves with GIS Emily Zeilberger and Amy Hunter of WGI

Room 2C
Who Moved My Coordinates 5 Feet
Allen Nobles of Surveying & Mapping LLC

Room 2D
What You Need to Know Before Adopting the
ESRI Utility Network
Wendy Peloquin of GISinc

Room 2E

Analysis of Trolley Service Areas Relative to
County Fixed Route

Zev Naiditch of Transportation America

Room 2F
Navigating through the complexity of a GIS Project
Wade Wilson of ITS, GIS and PMO Group







#### **Xan Fredericks**

Xan Fredericks, GISP, is the Associate National Map Liaison to Florida, Puerto Rico, and the U.S. Virgin Islands for the U.S. Geological Survey (USGS) National Geospatial Program, which provides the digital geospatial foundation for the United States, and is responsible for designing, planning, and executing the national topographic mapping program. She is also the Lidar Coordinator for the USGS Coastal/Marine Hazards and Resources Program, which focuses on understanding coastal change, geologic hazards and catastrophic events, ocean resources for America's needs, as well as coastal and marine ecosystem science through a variety of technologies, data, mapping products, and tools.

Xan is the USGS Southeast Region Lidar Point of Contact and the Chair of the USGS Lidar User Group. With more than a decade of GIS experience, she has disseminated over 80 lidar-derived GIS datasets with FGDC-compliant metadata. Xan is an active member of the Florida Coastal Mapping Program, Interagency Working Group on Ocean and Coastal Mapping, 3D Elevation Program Working Group, and USGS Geospatial Information Response Team.

She is currently serving as the Associate Chair of the Urban and Regional Information Systems Association (URISA) Professional Education Committee and as the American Society for Photogrammetry and Remote Sensing (ASPRS) GIS Division Director and Vice President of the Florida Region.











## STEP THROUGH THE PORTAL

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**SWA – Solid Waste Authority**Contact: jrudd@swa.org

**Woolpert, Inc.**Contact: Renee.Fite@Woolpert.com



# August 22, 2019 Keynote Address

8:30 a.m. - 10:15 a.m.

#### **Keyote**

#### Room 2D, 2E, 2F

From Citizens to Scientists: How the USGS Serves Florida Geospatially Xan Fredericks, GISP - Lidar Coordinator/Geospatial Liaison U.S. Geological Survey (USGS)

#### **Special Guest Speaker**

Kim Jackson, GISP, State Geographic Information Officer (GIS) Florida DEP

The U.S. Geological Survey (USGS) National Geospatial Program (NGP) provides a foundation of digital geospatial data representing the topography, natural landscape, and manmade environment of the United States. From citizens to scientists, Floridians can view and access NGP geospatial products and services through a variety of portals.

- The 3D Elevation Program (3DEP) is managed by the USGS to develop a new topographic database for the United States and its territories. 3DEP provides standards, contractors, data review and distribution, and funding towards development of new data to replace older terrain data. In 2019, new lidar data has been delivered, is underway, or is planned for production for portions of Florida. The lidar developed through 3DEP partnerships is available in the public domain through The National Map Viewer.
- The US Interagency Elevation Inventory and the Public Areas of Interest Project Collector Tool are used to help show where data are available and encourage collaboration and partnerships to produce elevation data. Federal agencies, state and local governments, tribes, academic institutions, and private sector groups interested in participating in 3DEP can apply for funds and use the online tools to help develop data partnerships.
- The USGS Event Support Map (ESM) is used by the Bureau to facilitate the
  operations of the Geospatial Information Response Team (GIRT) and to
  support situational awareness and resource management for the Bureau
  and the Department of the Interior. ESM's support a timely response and
  mitigation of natural hazards and provide critical information about the Earth
  and its processes. High-resolution elevation data play a key role in supporting
  community resiliency and sustainability.

Xan will discuss the 3D Elevation Program, different lidar deliverables and partners, The National Map, Event Support Maps, as well as the 3D Nation Study, the Interagency Working Group on Ocean and Coastal Mapping, and the Florida Coastal Mapping Program. All of these initiatives use GIS to leverage the power of geospatial data, from planning to dissemination!







# August 22, 2019 Workshops

10:30 a.m. - 12:15 p.m.

#### **ESRI Workshop**

Surfing the GIS Waves to Success by Adam Carnow of ESRI Adam Carnow, GISP, Solution Engineer- ESRI Room 2D, 2E, 2F

Like other technologies, GIS continues to evolve in a series of waves. We cannot ignore or fight these waves. We have got to learn how to harness them to power our organizations forward. This presentation will review proven, best practice strategies and real world examples on how you can surf these GIS waves to success. These best practices include:

- Focus on the Big Picture
- It's all about the business!
- Focus on Analytics and drive towards realizing Value
- Implement a Change Management Program
- Innovate
- Keep it simple
- Measure, document and publicize your impact
- Cultivate executive sponsorship
- Deploy Actionable Open Data
- Use of GIS provides benefits, so expand its use





Using ArcGIS Online and Asset Management to Manage Landfill Assets Mark Nelson, PE, Senior Consultant - Jones Edmunds & Associates, Inc. Room 2A

The New River Solid Waste Association (NRSWA) is using a Cityworks Asset Management Systems (AMS) to help manage the New River Regional Landfill's gas collection and control system (GCCS). During this session, we will discuss some of the benefits and challenges of AMS for landfill facility management and maintenance.

This AMS was populated and configured so that NRSWA staff could use it in accordance with their landfill's operations, best management practices, and recordkeeping needs. It was also developed with mobile capabilities to support accessing and updating data while out in the field. As part of the AMS implementation process, NRSWA's workflows and practices for GCCS management were evaluated to improve and best translate them into the AMS.





# Cost-effective asset collection and faster, better workflows using 3D streetscapes

Danny Hendren, Florida Account Manager - CycloMedia Technology, Inc. Jennifer Kuntz, GISP, Director of Solution Engineering and Training -CycloMedia Technology, Inc.

#### Room 2B

Organizations large and small can benefit from rapid and cost-effective asset collection using a 3D environment created from street-level imagery and terrestrial lidar.

Why send people trekking through the streets with GPS units when in a fraction of the time and at significantly reduced costs, artificial and natural intelligence (skilled data extraction analysts) can deliver a geodatabase with your asset locations and attributes? As a bonus item, like those Ginsu knives, you get a 3D streetscape embeddable in GIS, asset management systems, workflow management, websites, CAD and other applications.

Use the 3D imagery for additional work such as: DIY asset extractions, ad hoc measuring, project planning, real property reviews, or checking field conditions for public safety.





GIS Applications of Hi-Res Statewide Topo- and TopoBathymetric Data Dr. Al Karlin, Senior GIS - Dewberry Engineers
Melanie Masessa, Assistant Quality Manager - Dewberry Engineers
Room 2C

Dewberry Engineers has been at the forefront of integrating Remotesensed data, both imagery and Lidar, into GIS compatible formats.

This presentation highlights projects for emergency response in Puerto Rico, saving endangered species in the Florida Everglades, and mapping the topography of the Peninsula of Florida, and how the "big data" are used into GIS systems.





# Roundtable Panel Session - Come One Come All! Room 2D

# Lidar Data and Supporting Coastal Resilience Planning Mike Zoltek, PSM, CP, GISP, Senior Project Manager - Woolpert, Inc.

Sam Moffat, GISP, Program Director - Woolpert, Inc.

#### Room 2E

Coastal resilience is defined by the National Oceanic and Atmospheric Administration (NOAA) National Ocean Service as proactively building a community's capacity to "bounce back" from hazardous events such as hurricanes, coastal storms and flooding before a disaster takes place. For a state like Florida, whose geography, elevation and topography make it vulnerable to storm surges, susceptible to hurricanes and predisposed to sinkholes, coastal resilience is not an option—it's a necessity.

Woolpert has been busy this year as part of the statewide team capturing 35,000 square miles of QL1 lidar across the state of Florida. This data, along with FDOT Coastal Mapping projects, are providing the level of accuracy and detail needed to support coastal resiliency efforts throughout Florida. This data can be used to support semi-automated feature extraction algorithms to map sea wall elevations, impervious surface data and critical infrastructure along every inch of the urban coastlines.

We will also discuss the statewide mission to get the data in the hands of the people quickly and easily through cloud-based services to provide stakeholders a streamlined way to leverage the investment of the data collection.





"Centimeter Accurate GIS on Your iPad"? Not Accurate?

Rich Ash, GNSS and Mobile Technology Specialist - Eos Positioning

Room 2F

High-accuracy GPS/GNSS has changed a lot. In the early 2000s' GIS groups would spend as much as 10K on a sub meter GPS receiver and were required to use time-consuming post-processing workflows.

GIS techs can now use their iPad or smart phone devices with high accuracy bluetooth receivers to collect 3D (horizontal/vertical) centimeter-accurate data in apps like Esri's Collector, in real-time. High-accuracy multi-constellation GNSS positioning, both horizontal and vertical, is more affordable and available than ever before.

This presentation will look at some of the trends and key requirements to collect centimeter data in real time to a mobile GIS app like Esri's ArcGIS Collector on your smart device.





#### The Future of Aerial Imagery

Carl Decator, MBA - EagleView Technology Corp.

#### Room 2E

The presentation will trace the history of aerial imagery from the 1940's to present, focusing on the technical developments within and without the industry that fostered the advancement in technology.

The presentation will conclude with a look at the latest advancements in image collection and the opportunities that the new technology make possible





Building a 3D GIS environment for next-level, county-wide advancements in analytics, hazard mitigation, city planning and e911 Keith Owens, Technical and Business Development Manager - Fugro Geospatial, Inc.

#### Room 2B

Located in Western Pennsylvania, Cambria County has vast coal reserves, a seat on the Marcellus Shale and some of the highest wind potential in the eastern United States.

Given that the county's massive amounts of geologic, geospatial and topographic data were in various platforms and formats, efficiently planning, managing and communicating data analytics was a daily challenge for their GIS department. To overcome this challenge, the County, in partnership with Fugro, implemented a county-wide oblique 3D model environment that now incorporates spatial data ranging from coal contour elevations, well water locations, 3D road layers, building footprints, property parcel information and subsurface mineral rights, among others, in a seamless GIS for powerful analysis and visualization.

Crossing all departments and spanning the County, their new, centralized system is an innovative way of interacting with GIS and imagery that's providing multiple benefits to County staff including first responders, assessors, utility and geotechnical managers and public interest.

Join us for a discussion of Cambria's transition from 2D maps to 3D asset management environment, followed by a demo of this first of its kind project in action.





Improving the management and operational efficiency of topo-bathymetric LiDAR mapping in the Florida Keys using eGIS Russell Faux, Senior Vice President - Quantum Spatial Inc. Colin Cooper - Quantum Spatial Inc.

#### Room 2C

In August 2018, Quantum Spatial, Inc. (QSI) was contracted by NOAA NGS to map 2,135 sq. mi. of the Florida Keys Reef Tract impacted by Hurricane Irma. Data were acquired using two Riegl VQ-880-Gii topo-bathymetric lidar systems with collection completed in March 2019.

A project of this nature results in a large volume of diverse data layers. In addition to the LiDAR data itself, a project team collects supporting information such imagery, turbidity, survey control, ground checkpoints, environmental conditions, and field observations.

A challenge for project management is getting timely feedback on the quality and coverage of bathymetric data and ultimately making efficient use of field resources. In order to address this challenge, QSI developed an ArcGIS on-line application called Quick Look Viewer (QLV) for storing, managing, and visualizing all data sets with a single on-line map interface. The QLV effectively helps compress the timeline between data collection and review of preliminary results.

This presentation will provide an overview of the Florida Keys topobathymetric LiDAR project including new products such as seabed reflectance and total propagated uncertainty (TPU). Additionally, we will discuss how eGIS was used to facilitate project partner collaborative review and allow direct access to all spatial and temporal data.





High-Accuracy Data Collection with Collector: Is MSL Possible?

James Robeson - GPServ, Inc. a Division of Duncan-Parnell

Room 2D

ESRI's, ArcGIS Online and its Collector and Survey123 have revolutionized the GIS/GPS industry. It is a paradigm shift in spatial data, collection and use in the field.

Nothing is perfect, there are some deficiencies that the application developers in the GIS Services Group at Duncan-Parnell have been busy developing tools to resolve, while improving the quality and functionality of the data that can be produced in ArcGIS Online.





Utilizing Trimble eCognition software to update your data with the new Florida Lidar and imagery

Erin McCormick, Florida Region GIS and Mapping Solutions Consultant - Navigation Electronics, Inc.

#### Room 2E

This presentation will cover how to utilize Trimble's eCognition object-based image analysis in order to create data layers and to perform updates with existing data such as impervious surface, building layers, vegetation etc. It can also utilize the new Lidar data that will soon be available to not only assist in classification but also to add additional information such as roof slope, building and tree height and classifying areas in shadow on the imagery.

This Presentation will show use case scenarios and demonstrations for different applications.





# Integrating an Enterprise GIS With Third Party Applications to Enhance Municipal Operations

Tony Yates - Langan Engineering Brett Milburn - Langan Engineering

#### Room 2F

Enterprise-wide Geographic Information Systems (GIS) have been widely adopted by municipal government to support operations across multiple departments. While GIS often times serves the needs, there are many specialty software packages that exist that can enhance day-to-day operations across a municipality.

Langan Engineering & Environmental Services, Inc. (Langan) has assisted municipal agencies in deploying enterprise GIS systems that integrate with other third party software packages to maximize operations across the public works, planning and administration departments of a municipal entity.

This presentation will focus on examples of where Langan has enabled an enterprise GIS to integrate with third party software packages such as Verizon's Network Fleet to track activities such as vehicle maintenance, street sweeping, leaf collection and snow plowing, Pelican Corp's Ticket Access to automate call before you dig maps, Tyler Technologies Munis to manage accounting information with customer locations as well as Cues' Granite Net and Hurco Technologies' valve exerciser to update enterprise GIS directly from the field.





#### **Connecting People to Information through GIS**

Andy Zaletel, GISP, Project Manager - Baxter & Woodman, Inc.

#### Room 2A

One of the most critical components of sound, defensible decision-making is access to accurate and complete information. Managing, analyzing and distributing this information is essential to effective and efficient operations. Spatial technology can be used to manage and maintain data, make sense of it, and provide the answers to the people it matters to most, allowing for informed action.

Specifically, connecting staff, customers, and management to the information, data, and applications in such a way that it makes them more informed, efficient, and effective in the way that they conduct business and live life.

This presentation will focus on the use of Esri's Cloud-based application suite (ArcGIS Online) with specific application and project focus on Webapp Builder, Collector for ArcGIS, Survey123, and Operations Dashboard.





# Streamlining Damage Assessment and Response Using Collector/ Dashboards

Eric Blazewicz, Geographer - Palm Beach County Jeremy Hyames - Palm Beach County

#### Room 2B

Palm Beach County Traffic Engineering implements ArcGIS Collector and Dashboards to eliminate paper-based maps and improve response times. This out-of-the-box solution will help streamline the damage assessment workflow and save the County time and money.





GIS Integration in Urban Development from the Ground Up
Ken Cassel, City Manager - the City of Westlake
Kelley Conboy - Florida Technical Consultants
Room 2C

The City of Westlake is a new, innovative community being developed in central Palm Beach County.

The City, Seminole Improvement District and Florida Technical Consultants utilize GIS to help track development from the ground up. Plat management, parcel allotment, address planning, and utility construction are primary concerns for all parties involved. ArcGIS Online provides a centralized viewing platform to display this information in real time.





From Darkness into Light: Walking away from the Black Box
D. Michael Parrish - South Florida Water Management District
Room 2D

A funny thing happened on the way to government in the sunshine. The fruit of one man's commitment to openness, precision, and the future is available for use, sharing, reproduction, and, in this presentation of an eclectic collection of GIS tools, viewing. Topics include geometric computation (a.k.a., spatial analysis), visualization, data processing, and cartography (with emphasis on content as opposed to aesthetics).





NAPOT: Using GIS to Calculate Lift Station Pump Run Times Michael Green, GIS Coordinator for Utilities - City of Sunrise Room 2E

The City of Sunrise Utilities Department water system service area spans approximately 70 square miles, encompassing Sunrise, Southwest Ranches, Weston and portions of Davie, and serves more than 215,000 residential and commercial customers.

The Field Section Wastewater Division includes 20 employees that maintain and provide after-hour 24/7 emergency response services support for approximately 393 miles of gravity sewer systems, 215 lift stations, and 118 miles of force main/transmission systems. In order to adequately verify one aspect of lift station functionality, an ETM or "clock" is installed for each pump. This is the most commonly utilized early warning sign of trouble at lift stations.

The GIS staff was contacted by Utilities/Field Division staff with a request to develop a GIS application using ArcGIS Collector and WebApp builder which will be utilized by staff through the use of field devices (tablets & laptops). Pump run time information will be gathered and interpreted while staff is inspecting the lift stations on a monthly basis.

Along with the applications, SQL and Python scripting is being utilized to run a calculation behind the scenes in order to calculate the final required information (NAPOT) for proper preventative maintenance. Finally, a series of out of the box webapp builder tools will be configured to query the data being extracted from SCADA to compare to the field data collection to ensure accuracy of both SCADA and field data.





How do I do that in ArcGIS Pro?

Mike Sweeney - ESRI

#### Room 2F

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.





Hawaii 2018 Eruption: Using ArcGIS Online for Volunteer Efforts

Jim Kirkpatrick, GISP, GIS Manager - City of Vero Beach

Room 2A

Have you ever considered volunteering your time for a noble cause but have limited availability or responsibilities which require you to be home when you are not working? Why not put your expertise to work by creating and maintaining GIS data and\or maps on ArcGIS Online for those in need?

This presentation will discuss how you can contribute to society with the creation and distribution of spatial data using a free ArcGIS Online account from the comfort of your home. Specifically, I will discuss my volunteer efforts last year to assist the residents of the big island of Hawai'i in monitoring the eruption of Kilauea. Similar opportunities abound and time spent counts towards your GISP volunteer credits.





## **Analytics for Climate Resilience Planning**

Katie Lelis, GISP - Broward County Environmental Planning and Community Resilience

#### Room 2B

South Florida lives with the challenges of rising seas, saltwater intrusion, more intense storms, reduced drainage ability, and increasing population. Learn how GIS (ArcMap, ArcGIS Pro, AGOL, Story Maps, Dashboards, LiDar, Crowdsourcing, and 3D Animations) plays an integral role in Broward County's cutting edge resilience planning.

Topics include Equitable Green Infrastructure, Seawalls and Sea Level Rise, Space Time Cubes for Sea Turtle Nesting, Future Groundwater Elevation, Climate Uncertainties, and Future Water Supply. Katie will then reveal what's next, and how new GIS tools will sharpen upcoming analysis and visualizations.





#### **GIS 101: Understanding the Fundamentals**

John Watterson, GIS Specialist - Martin County Property Appraiser's Office Room 2C

Are you a non-GIS professional or new to the field? Have you come to this conference wanting to know what GIS exactly is?

This presentation will focus on what you should know about GIS before diving deeper into this fascinating field. We will discuss the brief but important history of GIS, its functions, GIS data types, GIS related fields, the many and growing applications of GIS, trends, and the future of GIS (as best we can judge). Two software demonstrations will be included. Please join us.





# August 23, 2019 Presentations 10:00 a.m. - 11:00 a.m.

#### **Developing a Successful Geospatial Internship Program**

Nicole Miller, Geographer - South Florida Water Management District Erika Moylan, Geographer - South Florida Water Management District Room 2D

This presentation will highlight the steps to develop a successful geospatial internship program in the IT Division of the South Florida Water Management District. See how the program has evolved into what it is today, as we explore and explain the steps and procedures to creating a mutually beneficial program.

This unpaid, semesterly program gives interns the chance to work alongside 20+ Geographers on various GIS needs to support the business and gain an in depth knowledge of District processes. By having a standardized training program for workflow efficiency, interns are able to complete a variety of mapping requests, spatial data analysis, and other Geospatial products.

This provides the District with additional geospatial support while creating positive ties with local colleges and universities. As well as, giving the intern the opportunity to explore geospatial interests, gain exposure to cutting edge technology, and develop a portfolio future opportunities.





### August 23, 2019 Presentations 10:00 a.m. - 11:00 a.m.

Identifying Canal Flow Restrictions Using a sUAS and a Marine ROV Juan Tobar, IT/GIS Manager - Lake Worth Drainage District Robert Haine - Lake Worth Drainage District

#### Room 2E

This presentation documents how the Lake Worth Drainage District (LWDD) used a small Unmanned Aerial System (sUAS) and a remotely operated marine drone to identify flow restrictions within a canal in Palm Beach County, FL. The presentation follows LWDD staff from preparation of the canal for aerial and bathymetric mapping through the creation of 2D/3D terrain and bathymetric models used to identify shoaling.

The LWDD manages the water resources for much of southeastern Palm Beach County, providing comprehensive flood control, water conservation, and water supply protection for more than 750,000 residents and thousands of acres of agricultural land. Our employees monitor and control a complex system of approximately 500 miles of canals and 1,000 miles associated rights-of-way, 20 major water control structures, and numerous minor structures.





### August 23, 2019 Presentations 10:00 a.m. – 11:00 a.m.

Leveraging ArcGIS Solutions in Your Organization - Esri's Election Solutions and Others

Mike Swapper FSRI

Mike Sweeney - ESRI

Room 2F

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 the 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. Discover the solutions currently available to the community.





One sensor does not fit all: an overview of UAS sensors and payloads for mapping professionals

Adam Benjamin, GISP, PSM, Geomatics Specialist - University of Florida at the Fort Lauderdale Research and Education Center (FLREC) Earl Soeder, PSM - GPServ Inc., a division of Duncan Parnel

#### Room 2A

The number of applications for UAS technology continues to grow year after year. As new practitioners enter the drone industry and established UAS practitioners search out new tools and technologies, the multitude of sensors and payloads available to the end user can be overwhelming.

The objective of this session is to provide an impartial overview of the prominent technologies that mapping professionals will encounter and to discuss important considerations that must be accounted for when choosing a sensor for a given project or application. UAS imaging sensor technology (e.g., RGB, multispectral, hyperspectral, thermal, lidar) will be the focal point of the discussion.





#### **Coral Gables Sea Level Rise Impact Planning Tool**

Zhaohui Jennifer Fu, Head of the GIS Center - Florida International University

Levente Juhász, Associate Researcher - Florida International University Henry Hochmair, Associate Professor - Florida International University Room 2B

Climate change threatens South Florida communities primarily by sea level rise. Federal, state, and local government agencies have taken action to monitor, project, and plan for this change. Development of resilient communities against sea level rise has become a priority at all levels of planning.

The Florida International University GIS Center teamed up with sea level rise experts and scientists from Florida International University and University of Florida to support data-driven planning for city resilience by developing a high resolution, comprehensive Sea Level Rise Impact Planning Tool for the City of Coral Gables.

This presentation demonstrates the prototype of this online application, which allows to map the flooding of areas in response to different scenarios of sea level rise and storm surge. It also allows to interactively and dynamically explore the impact of these hazards on various urban domains including infrastructure, property value, demography, pollution sources, land use and public institutions. The effects of user settings representing different sea level rise and storm surge scenarios are visualized on maps, charts, and tables to support informed decision making.

The presentation will furthermore discuss some of the technical aspects of the implementation including data sources, data integration and modeling database backend, client-server interaction and the use of scripts used for data preparation and online visualization.





# City of Coral Gables – Smart City Hub and Community Engagement Initiatives

Mark Hebert, GISP, GIS - Customer Support Manager - Coral Gables IT Dept.

#### Room 2C

Coral Gables applies smart city concepts to improve citizen and business services. This presentation will discuss and demonstrate how the City leverages the Esri ArcGIS Hub and Initiatives within our Smart City ecosystem.

A big reason in implementing Hub is to promote information and operations transparency. The initial engagement provided data access for people, businesses, and organizations. Hub is part of an interconnected and interoperable platform set of data, IoT, and robust ICT.

Initiatives are next on the smart city road map. They provide an arena for the public to weigh in on issues of concern. And, the city can put up a digital twin for projects that occurring in the commons.





Creating and Accessing a City Projects Database via ArcReader

Jim Kirkpatrick, GISP, GIS Manager - City of Vero Beach

Room 2D

The City of Vero Beach is 100 years old. As a result, there are hundreds of projects completed in the field over the years. The types of projects include the installation or maintenance of several infrastructure categories including stormwater, water\sewer, street pavement, sidewalks, park structures, irrigation, etc. In the past, locating information about these projects involved manually searching files stored on a server, which was tedious at best, especially for staff who do not have the historical knowledge of where to look.

The GIS Division is solving this issue by creating a spatial database of past City projects using a custom index grid. The projects are now viewable in ArcReader and are hyperlinked to their corresponding network folder location. This saves valuable time for staff when determining what historically has accrued at a particular location in the City.

This presentation will discuss the methodology and process in creating this solution.





#### **Field First**

Michael Low, IPE - City of Boynton Beach Waneya Bryant - City of Boynton Beach

#### Room 2B

Boynton Beach Utilities brought GIS into the city to manage assets and provide staff the ability to obtain reliable information from one go-to repository of data. As the value of the information became more apparent, a decision was made to move GIS to a centralized system.

Unfortunately, this resulted in the focus turning away from Utilities as GIS demands increased. With the advent of more recent GIS developments, the Utility decided to fund a significant upgrade to the licensing. A decision was made to give all Utility field staff access to GIS online via their city cell phones.

Field staff became the developers and were passionate about getting data into the system as the benefits of their work quickly became apparent. This presentation will showcase our journey to becoming a field first utility.





#### **Stepping Into the Court & Legal Portal with GIS**

David Rafaidus, Senior Planner - Palm Beach County Robert Schaffer, Geographer - South Florida Water Management District **Room 2F** 

Do you know how to "Step into the Court & Legal Portal" with GIS?

Do you understand that working with or for a government agency, there is always a possibility that your work could be legally questioned?

How do you establish controlling data, create exhibits and provide testimony?

What procedural steps should you use in a court case? Learn how to defend the products, data and methodology that you created!





#### **Mobile Data Collection Applications - An AEC Firm Case Study**

Tony Yates - Langan Engineering Brett Milburn - Langan Engineering

#### Room 2A

Since the 1990's, Langan Engineering & Environmental Services, Inc. (Langan) has applied the use of GIS on a variety of projects to enhance the analysis of project-related information and the display of this data. As technology has advanced, so has the use of GIS at Langan to support the Firm's services.

One area specifically, where GIS-related technology has had a significant impact at Langan is through the use mobile data collection techniques. With the use of Esri's Survey123 and Collector for ArcGIS, Langan has increased our efficiencies with both spatial and non-spatial field data collection up to 80% compared to past hand written methods. Due to the enhanced communication, quality of data, and overall efficiencies these applications provide, they have been embraced and adopted by all disciplines at our Firm in some way or another.

Currently, we have about 10 standard forms/maps deployed across the Firm to enhance the quality and speed in which we collect and report project-related data. Over the coming year, we anticipate that we will have over 30 generic form/map-based applications for routine tasks that staff can utilize when out in the field.

This is in addition to the hundreds of projects that are currently using this technology for very specific field data collection and field-to-office communication tasks to support decision making processes.





A Picture is Worth.... Creativity with Story Maps Terry Toler, Solutions Engineer - Broward County Room 2B

The complete removal of PDF's and PowerPoint presentations in your organization for Story Maps.





Feature Layers - Providing Core Functionality across the Services Based Architecture by Lee Harding of the Town of Jupiter Lee Harding, MA, GISP, GIS Manager - Town of Jupiter Room 2C

Feature Layers Provide Core Functionality for End Users, Programmers, Desktop GIS, Parcel Fabrics, and Utility Networks across the ESRI Services Based Architecture.





Finally - A "Smart" Fire Hydrant Inspection Process for BSO (Phase I)

Bhairavi (BearVee) Pandya, GISP -Broward Sheriff's Office GIS - IT Dept.

Captain Kevin Bartlett - BSO Fire Department - Cooper City

Room 2D

This presentation will go over the evolutionary process of Fire RMS Fire Hydrant Inspections from "paper" to "smart" for Broward Sheriff's Office Fire Department.

Topics will include the "old" process where geodatabases, spreadsheets and manual geoprocessing were part of the workflow as opposed to the new workflow for BSO which now leverages the ESRI ArcGIS Enterprise 10.6.1 utilizing Portal and Web/mobile applications.





The new Geospatial Open Data Portal and streamlined GIS homepage for improved access to the District's Geospatial/GIS products

Alexandra Hoffart, Geographer - South Florida Water Management District

Maryam Mashayekhi - South Florida Water Management District

Room 2F

As a government agency, the South Florida Water Management District is required to share data with the public, which includes Geospatial/GIS datasets.

Our former structure, the GIS Data Catalog, was built on older technology and limited to the delivery of zipped shapefiles. Last year, in an effort to address its shortcomings, we created the Geospatial Open Data Portal with ESRI's ArcGIS Hub. While the Hub is a new, innovative way to share data with our community, we still needed a way to make all our Geospatial products more discoverable and easier to navigate. Our newest improvements include expanding the Geospatial Open Data Portal to also include access to our interactive web applications, informative story maps, and other GIS-related content. We've also streamlined the SFWMD's GIS landing page to provide quick and easy access to our new Geospatial Open Data Portal, a map gallery featuring some of our most popular maps, and the Quick Maps application.

This presentation will showcase our upgrades, demonstrate the different Geospatial products and functionalities made available through these sites, and touch on lessons learned.





#### **Coordinating Efforts in a Decentralized Environment**

Melissa Northey - City of Ocala

#### Room 2F

For many years, the GIS community has debated centralized vs. decentralized for handling GIS operations. Each method comes with its challenges as well as benefits. Even if the solution was more apparent, sometimes we do not get to choose what we get. GIS operations include everything from data, software, defining roles and responsibilities, standards, and systems integration.

Coming into an already decentralized environment, Melissa was tasked with Coordinating GIS efforts throughout the City of Ocala. How does one coordinate efforts in all operational areas between twenty departments? Where do you start?

This presentation will share tips on successful GIS coordination within the City of Ocala. From providing candy to utilizing new technologies, building relationships and communication, communication, communication.





Collaborative Damage Assessment using Collector

Beth Norton, GIS Analyst - Palm Beach County ISS/GIS Service Bureau

Room 2A

Palm Beach County will be partnering with several municipalities in using ESRI's Collector application to assess damage this hurricane season. Collector allows for connected or disconnected editing and the GIS Service Bureau has devised a way to allow users to update multiple addresses in an area with the same damage and inspection attributes. This allows for a quicker windshield assessment of areas.

The inspection crews can also add field notes such as power lines or poles down, tree and road debris, structure information, blue roof candidate information or any other information of importance.





Map It Mobile: Integrating Legacy GIS with Modern Data Collection Leah Newman, DevOps Architect - Hydromax USA Room 2A

Do you stare longingly at the Early Adopter Community page dreaming of the day you can finally introduce Survey123 into your existing workflows? Do you dream of offline data collection but worry your legacy dataset will overload a mobile device? We've been there!

Using Explorer, Survey123, Collector, and ArcGIS Pro, we designed a process that allows users to interact with large datasets on their mobile devices and collect directly against existing data, regardless of connectivity. Come learn how we leveraged Esri's custom URL schema to make a massive legacy geodatabase easily consumable across the entire suite of mobile apps.





Finding data to complete water resource evaluations for water use permit applications within SFWMD

Hope Barton, Lead Hydrogeologist - South Florida Water Management District

#### Room 2C

Section 373.223 of the Florida Statutes provide a three-pronged test for evaluating proposed water uses as follows: (1) the use must be reasonable-beneficial; (2) must not interfere with any existing legal use of water; and (3) must be consistent with the public interest.

Reasonable assurances that the proposed water use meets this three-pronged test is required from applicants requesting individual consumptive water use permits with South Florida Water Management District (District). Applicants are required to calculate the groundwater drawdown radius of influence (ROI) and evaluate any potential impact from sources of pollution, migration of saline water and wetland environments. Applicants must also evaluate the technical and environmental feasibility for the use of reclaimed water supply .

Information needed for the water resource evaluation can be obtained from the District's recently launched open portal web site, which includes a wealth of Arc GIS Online (AGOL) data sets. Applicants can obtain information detailing existing legal users, withdrawal facilities, groundwater and surface water monitoring sites, water quality, location of water reuse lines and saltwater intrusion lines.

Information regarding sources of pollution locations and restricted convents can be obtained from the Florida Department of Environmental Protection's website. Broward and Miami-Dade Counties also have websites that provide the locations and status of potential sources of pollution.





Long-term Change Detection of Jupiter Inlet Lighthouse ONA
Stephen Castillo, Graduate Student - Florida Atlantic University
Sudhagar Nagarajan, Assistant Professor - Florida Atlantic University
Room 2D

The objective of this work is to perform shoreline change analysis of Jupiter Inlet Lighthouse Outstanding Natural Area (ONA) using historical shorelines and more recent Unmanned Aerial System (UAS) data.

The Jupiter Inlet Lighthouse Outstanding Natural Area (ONA) is home to various endangered species of flora and fauna. The presentation will discuss about the ecological significance of the ONA and the importance in monitoring it regularly.

The results of the study on long-term change detection of shorelines using historical shorelines dating from 1954 to 2018 will be presented. Some of the most recent shoreline data for the ONA was derived using UAS based photogrammetric techniques. The presentation will also include the elements on how recent storm events such as Hurricanes Matthew and Irma affected the short-term and long-term shoreline changes of the site.





What Every New GIS Manager Should Know Randal Krejcarek - Spatial Focus LLC Room 2E

You are a technical GIS expert and as a reward for your expertise you are promoted to manage your organization's GIS. Now what? This presentation will provide an overview of the skills managers need to succeed in their new role.





# Mapping and Modeling Mangrove Damages from Hurricanes in South Florida

Dr. Caiyun Zhang, Associate Professor - Florida Atlantic University
Room 2F

Mangrove forests are productive ecosystems but are vulnerable to hurricanes. In this study, we quantified and mapped the damage of mangroves from Hurricane Irma at a large-scale using Landsat data, and modeled the risk of mangroves to hurricanes using three internal/physical metrics (a vegetation index, canopy height, and distance to open ocean) and two external/hurricane-related metrics (hurricane track and storm surge inundation).

Four machine learning techniques were examined and compared with the linear model methods to identify the best risk model for damage projection from future hurricanes.

The models were calibrated and validated using data before and after Hurricane Irma. We applied object-based modeling and mapping techniques and produced mangrove damage maps from Irma and a worst-case scenario hurricane with an intensity of Category 5 and a track along the mangrove distribution.

A total of 332 km2 of mangroves were severely damaged from Irma, and 635 km2 would be devastated from the modeled scenario.





The 2020 Census: Geographic Partnership Opportunities

William Curry, Geographic Coordinator - Atlanta Regional Census Center

Room 2A

In this presentation I will provide a brief overview of Census 2020 plans and focus on the opportunities for Census collaboration with state and local government liaisons through several different geographic partnership programs. With innovative changes to the design and plans for the 2020 Census, we are also changing the way our geographic partnership programs will operate in 2020.

The Participant Statistical Areas Program (PSAP) will utilize local Census data users to review and update statistical geographies (tracts, block groups, census designated places, and census county divisions) for 2020 Census data tabulations. The New Construction Program (NC) will give governments an opportunity to submit addresses for units constructed after the 2020 Local Update of Census Address (LUCA) operation.

The annual Boundary and Annexation Survey (BAS) will continue to collect the legal boundaries as of January 1 of each year. I will also provide an update on the 2020 Local Update of Census Address (LUCA) Operation, including the feedback and appeals process.

I will present our planned schedules for each of these programs, and we will discuss some of the new tools are being developed to allow our partners to participate efficiently and effectively.





#### **Helping Engineers Help Themselves with GIS**

Emily Zeilberger, GIS Specialist - WGI Amy Hunter, GISP - WGI

#### Room 2B

As a multidisciplinary firm offering services such as surveying, engineering, environmental, and planning, there are many challenges to serving each group effectively. GIS professionals need to learn facets of each discipline to create the most appropriate and effective solutions.

We will discuss the challenges of supporting an AEC firm, communicating effectively with engineers, and show examples of workflows and solutions designed to increase efficiency on successful projects.





#### Who Moved My Coordinates 5 Feet

Allen Nobles, Senior Vice President - SAM Surveying and Mapping, LLC Room 2C

Modernization of the NSRS and New Florida SPCS Zones.

The presentation will provide a good overview on both the new shift coming for the horizontal and the vertical datums as part of the National Spatial Reference System (NSRS) and the work being done for the establishment of new Florida State Plane Coordinate (SPCS) Zones.

This presentation will include the NSRS History, why the datum change, how it's being done, the potential impacts, and how the Florida Stakeholder Group can be involved with establishing new State Plane Coordinate System zones to reduce linear distortion.





What You Need to Know Before Adopting the Esri Utility Network Wendy Paloquin, GISP, Account Executive - GISinc Room 2D

Esri's Support for the Geometric Network will end in January 2024. The clock is ticking for those that need to migrate to ArcGIS Pro, ArcGIS Enterprise/Services Based Architecture, and the Utility Network.

This presentation will discuss the benefits of the Esri Utility Management Extension, Utility Network technical requirements, how to prepare to adopt the Utility Network Data Model, special considerations, and how you can run parallel systems while you are in the process of migrating.





Analysis of Trolley Service Areas Relative to County Fixed Route
Zev Naiditch, Paratransit General Manager - Transportation America
Room 2E

Many cities and municipalities offer free trolley or circulator service within much larger county bus service areas. Often ignored or overlooked, there are overlapping service areas which can be reduced or optimized using GIS. Additionally, the ADA component of trolleys will be reviewed.





#### Navigating through the complexity of a GIS Project

Jerry Freeman, ITS Director of Applications -Tampa International Airport Wade Wilson, Manager - Tampa International Airport

#### Room 2F

There is more to GIS Projects than implementing technology and converting data. The most difficult part of the solution is identifying and leveraging the right tools/applications that is core to your business and legal requirements, and then getting the business to adopt those changes.

We struggled with trying to build utopia and getting adoption, until we returned to developing core foundation and user experience. The following is the tale of that journey and what failures and success we had along the way.





### **Notes**



### **Notes**



#### THE 2019 SOUTH FLORIDA GIS EXPO

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Heather Kostura – South Florida Water Management District Josephine Rudd – Palm Beach County Solid Waste Authority

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# Step Through The Portal

August 22-23, 2019 PBC Convention Center 650 Okeechobee Blvd, West Palm Beach, FL 33401

# Committee













































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# 2019 SOUTH FLORIDA GIS EXPO





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