Esri Mid-Atlantic User Group Newsletter

Spring 2016

Welcome to the Spring 2016 edition of the Esri-MUG Newsletter. If you have a calendar item, GIS activity, or GIS news item that might be of interest to us all, please submit it to our newsletter editor, Andrew Kuder, at andy.kuder@nv5.com.

President's Message

Chris Markel, Esri-MUG President

What can the MUG do for you?

The 2015 Mid-Atlantic User Conference is behind us, and we're already well into 2016. Planning for this year's conference has begun and we've been thinking about other MUG activities and initiatives. Some of you have been part of the group for a long time, and perhaps have some expectations of what the year will bring. Some of you are new to the group and perhaps are wondering just what it does.

We'd love to hear your ideas on what the MUG can do. Focused meetings on applications, or use of ArcGIS Online? Social events or meetups? Mapping days? The MUG should reflect its' members interests, and I encourage you to let the group know what interests you. Pass along your idea to one of the Board members listed in this newsletter, or join the discussion in the LinkedIn group (search for ESRI MUG if you're not a member).

Upcoming 2016 MUG Events

Tom Schweitzer and Brendan Ford are planning the 2016 Esri-MUG golf outing. Stay tuned for more details.

Look for the Esri-MUG Special Interest Group meeting at the 2016 Esri User Conference in San Diego. It will be held on Tuesday evening at 5:30.

GISP Certification Exam

By Andy Kuder, NV5

As readers of this newsletter may already know, the GIS Certification Institute (GISCI) has been working over the past several years toward a method of awarding the GISP certification using an exam that measures technical expertise. This finally came to fruition in 2015. According to the GISCI website, the exam is "a groundbreaking development in the geospatial profession, based upon a complete job analysis from a four-year experience level, informed by GIS&T Body of Knowledge and guided by the Geospatial Technology Competency Model (GTCM)." The first exam, officially known as the *GISCI Geospatial Core Technical Knowledge Exam*, was successfully implemented between November 12 and 17, 2015.

Finding out information about the exam is relatively easy. The most comprehensive information can be found on the GISCI website, but for starters the exam is broken down into six categories of competency including:

1. Conceptual Foundations (e.g. knowledge of spatial relationships, distance, topology, etc.),
2. Cartography and Visualization (e.g. knowledge of contour mapping, physical geography, data collection, etc.),
3. GIS Design Aspects and Data Modeling (data exchange procedures, database administration, systems architecture, etc.),
4. GIS Analytical Methods (overlay analysis, knowledge of planar geometry, algebra, etc.),
5. Data Manipulation (selection queries, different data types, different field types, etc.), and
6. Geospatial Data (metadata standards, data archiving and retrieval, basic geomatics, etc.). This is clearly not an exhaustive list of sub-topics.

Further information regarding exam preparation, categorical breakdowns, and sample questions can be found here. The link also provides a list of study resources, although the descriptions of said resources are relatively generic. Lastly, the link provides a breakdown of what to bring on exam day.

The Exam and Portfolio Review are offered independently of one another, but both must be completed in order to receive GISP Certification. When you have

started with either the Exam or the Portfolio Review, you have up to six (6) years to complete the other before you have to start over.

The portfolio review fee is $100, there is an application fee of $100 in order to declare your interest in taking the exam, and the exam fee itself is $250, for a total of $450. Once the application is approved, GISCI will provide you with a location to a testing center. PSI testing centers are where you can take the exam, which is moderated. I spoke with Bill Hodge, Executive Director of GISCI, regarding the first exam's success. While he declined to provide specific information on how many people took the first round of testing, he did say that they achieved the statistically significant number needed to make the exam successful. If you are curious in finding out more on the processes by which the GISCI came to put the exam together, this article written by Rebecca Somers who was the Project Manager for the exam process will provide additional information.

The next exam has been scheduled for July 5-9, 2016. GISCI is also exploring the possibility of hosting an exam for Esri User Conference attendees in San Diego. It appears they plan to release more frequent dates in the future. However, since this exam is relatively new it could take a little time to put that in place.

Lastly, for those of you with a GISP already, as long as you haven't let your certification lapse beyond the one year grace period, you will not have to take the exam to retain your GISP in subsequent recertification. If you are up for recertification, consider this your reminder that the recertification process is now done entirely online.

Mobile LiDAR

By Angelica Hassinger, Langan Engineering

In the past, traditional LiDAR scanning was limited to either terrestrial laser scanning (TLS) or airborne LiDAR. While TLS is highly accurate with high density point clouds and lower costs, it is stationary and multiple scans are required to complete a full project. The alternative, airborne LiDAR collection, which allows for the collection of larger areas at once and is not as dense, comes with a much larger cost. With the recent advancement of mobile LiDAR acquisition and processing technologies, users now have the ability to collect large amounts of high density point cloud and imagery data without the larger costs of an airborne LiDAR collection or the longer collection times of the TLS workflow.
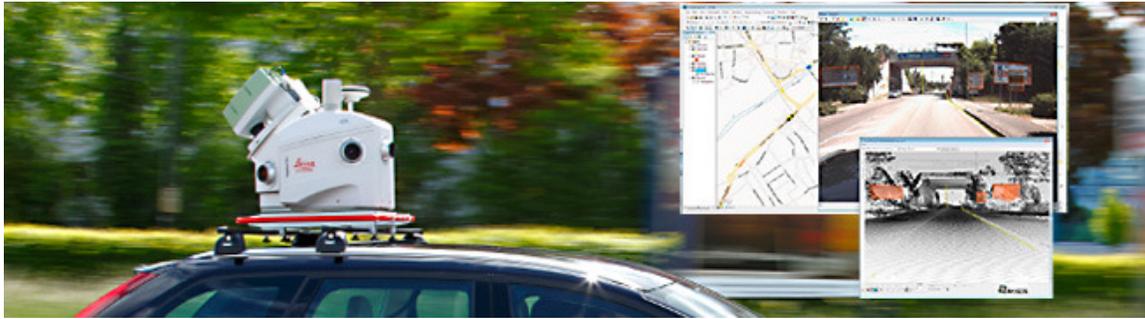
Langan Engineering & Environmental Services (Langan), an Esri® Business Partner, utilizes a Leica® Pegasus: Two (P2) mobile mapping system. The mobile mapping industry has quickly evolved and advanced. Some of the other mobile LiDAR scanner brands available include Riegl and Trimble. Some units utilize dual scanners, but require additional post-processing of data. Other units like the P2 have a single scanner.

Langan uses the P2 to enhance current project deliverables with high accuracy maps and accompanying imagery. The P2 has six cameras allowing for the capture of full 360º panoramic imagery. The P2 has two additional cameras; one is a sky facing camera for the capture of overhead structures, bridges, and tunnels; the other is a down facing camera to collect roadway pavement markings, features, and conditions. By collecting imagery simultaneously with the point cloud, the P2 is able to colorize the resulting points in the LiDAR point cloud with an RGB value based on the corresponding pixels within the imagery.

Here at Langan, we have seen that there are endless possibilities for data collection with the P2 mobile mapping system, as it can be mounted to any vehicle. One of the most recent uses has been for railroad inventory. The largest opportunities to date have been the collection and cataloging of street signs for local and state governments. With the recent Federal mandates, local and state governments are required to conform to new sign regulations within the Manual on Uniform Traffic Control Devices (MUTCD), including sign reflectivity, updated font, and capitalization requirements. Sign inventories are needed to document current conditions of signs and to track the replaced signs. Many local and state transportation departments are exploring the most effective methods of completing these sign inventories. Because these sign inventories do not need to have survey grade accuracy (+/- 0.1'), Mobile LiDAR can effortlessly capture an entire municipality in as little as one day.

As an added benefit for our clients, by scanning their project, they now have a living repository for their entire area from which additional features can be extracted as needed. Municipalities completing a sign inventory with a mobile

LiDAR scanner are now able to collect their ADA ramps for compliance or to estimate the amount of pavement markings in the municipality.

Leica® MapFactory software for the P2, which runs through an Esri® plug-in for ArcGIS and ArcExplorer, allows the user to process data, and view data and imagery, extract features, and export data as needed to GIS. The software also allows the user to render the LiDAR point cloud based on feature heights, reflectivity, and RGB color, allowing users to easily identify features for extraction, modeling, analysis, or decision support needs.

Langan has learned a great deal over the relatively short period of time we have owned our mobile mapping system. We have learned that the most important part of any mobile scanning project is the planning phase. Our best advice to anyone interested in utilizing mobile scanning is to have a detailed plan for your project, starting with the drive routes and if survey control might be necessary, and ranging all the way to data and infrastructure needs for your project. Depending on the size of the project, you may be looking at terabytes of data which can quickly affect computing and processing speeds if not properly prepared.

Esri-MUG 2015 Annual Conference Recap

The Esri-MUG 2015 Annual Conference was held December 7-9, 2015 at the Baltimore Convention Center, Baltimore, MD.   By all accounts it was another very successful conference. We had a total of 229 conference attendees and 7 exhibiting organizations.

Many thanks to the Esri Philadelphia staff for organizing the conference; our plenary speaker Christian Carlson of Esri; our lunchtime keynote panel; our Esri conference coordinator; all of our presenters; our sponsor and our exhibitors; the Esri staff; Casey Horst of JMT who organized the Trivia Night event; the Baltimore Convention Center; Geppi's Entertainment Museum; and the Esri-MUG Board of Directors for all their hard work that made this another successful conference!

For additional information regarding the agenda, exhibits, and presentations check out the conference website - http://www.esri.com/events/mid-atlantic

The Esri-MUG Annual Conference officially kicked off on Tuesday, December 7, 2015 at its Plenary Session with Plenary Speaker Christian Carleson, Director of State and Government Sales, Esri. Christian Carlson has been with Esri for 17 years and currently serves as the director of state and local government sales. He has degrees in economics and geography from the University of Colorado at Boulder and an MBA from the University of North Carolina at Chapel Hill.

Our lunchtime keynote panel brought together a diverse panel with experience in "New Modes of Remote Sensing." The moderator was Dr. David Maune, of Dewberry, a noted expert in the field of remote sensing and LiDAR technology. The panelists were Joe Kochendarfer, Pictometry, who spoke about orthoimagery and specifically how oblique orthoimagery can be used to aid projects; Robert Schwartz, Remote Intelligence, who spoke about the use of unmanned aerial vehicles (AKA drones); and Tom Schweitzer, Atkins, who spoke about the use of unmanned boats for bathymetric data collection.

Congratulations to our Maps and Apps winners:

- Best in Design: Using GIS in Remote Sensing to Streamline Loudoun County's BaseMap Update, Mita Mathur
- Best in Storytelling: Maximize 2040: Performance Based Transportation Plan, Mara Kaminowitz
- People's Choice: Following the Papal Visit, Kelly Montague

Thank you to our student helpers from the Community College of Baltimore County (CCBC), Kevin McMahon and Katy Weyforth. They each received a $250 scholarship from Esri-MUG for their efforts.

Sponsors

Special thanks to our Platinum Sponsor Cityworks for their support of the Esri-MUG conference.

Exhibitors

Seven organizations were on hand to showcase their latest products and services for the GIS community.

Exhibitors
Cityworks
Delasoft, Inc.
Duncan-Parnell, Inc.
EagleView Pictometry
Esri

Exhibitors
Latitude Geographics Group, Ltd.
Timmons

Esri-MUG Business Meeting

Esri-MUG secretary Sue Hoegberg announced the results of the Esri-MUG Officers' election.

Esri-MUG on LinkedIn

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Esri-MUG 2016 Officers

Office	Name	Phone	E-Mail
President	Chris Markel	814-360-8406	chrismarkel@gmail.com
Vice President	Tom Schweitzer	301-210-6800 x4381213	Thomas.Schweitzer@atkinsglobal.com
Treasurer	Mario Field	202-727-1761	mario.field@dc.gov
Secretary	Sue Hoegberg	703-849-0419	shoegberg@dewberry.com

Board of Directors Meetings

Board of Directors' Meetings are held via conference call the first Thursday of each month. Please join us and get involved! Contact Sue Hoegberg at 703-849-0419 or shoegberg@dewberry.com for more information, dates and times, call-in number, etc.