Presentation Title:	Last Name	First Name	Job Title	Company / Organization	Abstract:	Bios	List Co-Presenters:	Notes	Day/Time
Measuring Ice Accumulation at Jarvis Creek using Remote Sensing Technology	Barnard	Colin	Program Administrator	Salcha-Delta Soil and Water Conservation District	In order to understand how the meltwater discharge of Jarvis Creek impacts adjacent land owners of Delta Junction, the Salcha-Delta Soil and Water Conservation District (SDSWCD) needed more detailed information about the shape and volume of aufeis that forms over Winter. The task of quantifying the ice on Jarvis Creek using traditional survey methods has proved difficult at best and often dangerous to field personnel. The most effective way to acquire the information necessary to quantify the aufeis was using remote sensing techniques such as LiDAR. Two surfaces were developed – one before the ice was formed and the second after the ice was at its peak. To quantify volume of aufeis, a surface difference calculation was run in GIS between the two surfaces. In addition to ice volume calculations, watershed delineations were performed on each dataset to calculate how the aufeis affects the flow path of surface water in early spring within the floodplain. Calculating the flowpath is important because the difference between two adjacent watersheds (one that flows to the Delta River while the other flows through the town of Delta Junction towards Clearwater Lake) is a meter high bank on Jarvis Creek that becomes covered by aufeis essentially merging the two watersheds together. Understanding these flow paths and how they are changed by aufeis formation allows us to understand how flooding occurs in the populated areas of Delta Junction and how wetland recharge may occur within the floodplain. Having a typical volume of aufeis and understanding how it affects early season surface flow is the first step to understanding this hydrological process as a whole. In turn, understanding this process will help all parties involved in the management of this issue make more informed decisions based on quantifiable scientific principles and not merely anecdotal observations.	**Colin Barnard** received a B.S. degree in Natural Resources Management: Plant, Animal and Soil Sciences with minor in Chemistry from the University of Alaska, Fairbanks in 1996. He has worked for the Salcha-Delta Soil and Water Conservation District for 11 of the last 12 years as the GIS Program Administrator and was recently promoted to Programs Administrator this past year. Prior to that he worked for NRCS as a Soil Conservationist in the Pago Pago, American Samoa Field Office in the south pacific and in the Delta Junction, Alaska Field Office.	**Adam McCullough** (Quantum Spatial)	30 Minutes	Thursday 4:30 - 5:00 (KS/I)
Tracking the Anchorage Homeless Population	Burke	Nancy	Homeless and Housing Coordinator: Homeless and Supportive Housing	Municipality of Anchorage	A cop, therapist, social worker and engineer walk into a room…learn how this scenario works out! Anchorage has utilized an innovative approach to conducting outreach in a Housing First focused implementation of coordinated entry. Using GIS mapping and smart phone technology, outreach workers, police, mental health providers and supporting non-profits can coordinate location, engagement and prioritization of people for housing in the community.	**Melina Breland**, Licensed Mental Health Counselor, coordinates adult homeless crisis intervention service through the United Way of Anchorage and is the lead clinical oversight for the community's Mobile Intervention Team. Breland has six years of experience in working with vulnerable, highly acute and severely mentally ill homeless individuals in both Seattle and Anchorage. **Nancy Burke**, MSW, Housing and Homeless Services Coordinator, Office of Mayor Ethan Berkowitz. Burke's role is to bring together Municipal and community resources in a Housing First frame. Burke previously worked across the state of Alaska developing supported housing for people with mental illness and disabilities through service planning/financing for Housing First programs. **Jack Carson**, Lieutenant, Anchorage Police Department, a 17 year experienced law enforcement official with 10 years of drug enforcement, tactical response and crisis intervention. Carson is commander over the Community Action Policing team that serves as the crime suppression unit and homeless camp/street outreach team assisting with the Mayor's initiative and community work to end homelessness.	**Melina Breland** (Licensed Mental Health Counselor), **Jack Carlson** (Lieutenant, APD), **Christina Miller**	30-minutes	Thursday 11:30 - 12:00 (K)
New Digital Life for a Historic Mine	Cusick	Joel	GIS Specialist	National Park Service	Recent advancements in scanning technology have made it possible to capture realistic models of remote sites in Alaska National Parks and tie these scans to grid. This summer Joel Cusick and surveyors from Trimble and Frontier Precision demonstrated the use of the Trimble SX10 total station in the National Historic Landmark town of Kennecott deep within Wrangell-St. Elias National Park and Preserve. This presentation will show the highlights of this fascinating project on one of North America's largest wooden structures towering over 14 stories tall. In true Alaska form we took a system and put it on an Alaska-scale project pushing the bounds of device and software to produce a 3-D model in 3 days of field work.	**Joel Cusick** is a GIS specialist for the National Park Service Alaska Regional Office. Joel worked as a foreign fishery observer, then commercial longliner before returning to his biological science roots as a biotech during the Exxon Valdez Oil Spill. Joel then landed a job as a GIS technician for the regional office of the National Park Service. Joel grew up in GIS with emerging GPS systems specifically tuned for mapping which has forced many questions on exactly where he is at any time. Luckily he returns every year to the AKSMC to get tuned into the latest technologies and wrestle with GRID to GROUND. **John Wachtel** began a summer internship with the Heritage Documentation Programs in Washington, DC after graduating from Iowa State University in 2009 with a bachelor's degree in Architecture. Since then he has worked on numerous Historic American Buildings Survey (HABS) and Historic American Engineering Record (HAER) projects ranging from NASA's Space Shuttle Discovery and Rocket Test Stands, to humble stone bridges and Chesapeake Bay oyster dredging ships. John has specialized in creative interpretive solutions for many of the new documentation methods that the National Park Service has employed in the recent past, including High Definition Laser Scanning, 3D modeling, and Photogrammetry. John joined NPS in 2016. He administers the HABS/HAER/HALS programs for the Alaska Region.	**John Wachtel** (Historical Architect, National Register Team, Cutural Resources - National Park Service)	45 Minutes	Friday 10:30 - 11:15 (K)

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Estimating Volume of Earth Excavation to meet Airfield Clear Zone Requirements	Draper	Vikki	GIS Analyst	673d Civil Engineer Squadron, GeoBase – Joint Base Elmendorf-Richarson	It was discovered that existing terrain located on the north end of the N-S runway on Joint Base Elmendorf-Richardson did not meet airfield clear zone requirements so a projected plan to excavate material was engaged. GIS methods were applied to estimate the volume of material and the project is currently underway. Recently, the Air Force Civil Engineering Center's (AFCEC) GeoBase office awarded a contract for aerial imagery refresh and airborne LiDAR data collection. Using this new elevation data we were able to compare the post-excavation surface to the pre-excavation surface and perform a difference in volume calculation using ArcGIS 3D Analyst Raster Surface and Triangulated Surface tools. We also utilized ArcScene's 3D tools to overlay the pre and post TIN surfaces to better visualize the changes in terrain.	**Vikki Draper** has 14 years of experience as a GIS Analyst for the Department of Defense working at Goodfellow AFB Texas and now at Joint Base Elmendorf-Richardson. Vikki has prior experience as a land surveying technician and civil engineering technician in New York, Alaska and Texas. Vikki helps maintain the base GIS data as well as generating GIS maps for various customers across the base.	**John Gumpert** (GeoBase Program Manager, JBER)	30 Minutes	Thursday 3:30 - 4:00 (KS/I)
Modernizing the Fairbanks North Star Borough Online Map Viewer using Web AppBuilder	Dunbar	Bryn	GIS Technician II	Fairbanks North Star Borough	The Fairbanks North Star Borough has constructed a new and comprehensive map viewer using Web AppBuilder for ArcGIS. The Fairbanks North Star Borough's existing main interactive map viewer was first released in 2003 and was growing more outdated by the minute. The old ArcIMS viewer was functional, fairly powerful, and probably superb in its heyday. Over the years, various technical and time limitations allowed ArcIMS to survive at the Fairbanks North Star Borough. However, the FNSB GIS Division found that newer tools and technologies could bring more power, a more modern look and feel, and more ease of use to their comprehensive map viewer. The goals of the FNSB GIS Division were to not lose any functionality of the existing ArcIMS map viewer, while replacing it with a map viewer, made from Web AppBuilder, that was easier to use; easier to improve; and easier to update data. Installation of ArcGIS Server and Portal for ArcGIS within the past two years made these goals attainable. During the construction of the new map viewer, the FNSB GIS Division spent several months exploring the themes and widgets of Web AppBuilder. The division also put effort into branding their new app by brainstorming titles, colors, thumbnails, and icons. The result is a new map viewer called FairbanksNorthStar GIS.	**Bryn Dunbar** is a GIS Technician at the Fairbanks North Star Borough. She spends the majority of her time at the borough immersed in land records mapping, however, recently she has been spending time creating maps in the borough's GIS Portal and Apps from Web AppBuilder. She holds a Bachelor's degree in Geography, from Central Washington University, and has been using GIS since 2006.		30 Minutes	Wednesday 2:30 - 3:00 (KS/I)
How High Can I build before planes hit my building? Use Imagination!	Duncan	Thomas	GIS Coordinator	Fairbanks North Star Borough	The Fairbanks North Star Borough is working with the military to ensure safe flight clearances for Ft. Wainwright's Ladd Field, and Eielson Air Force Base. The FNSB is also studying flight clearances for Fairbanks International Airport. All three airports are adjacent to populated areas. The Army, Air Force, and Alaska DOTPF have defined an Imaginary Aerial Surface for each airfield which should not be penetrated by structures. The FNSB is considering proposing a Height Overlay into the Zoning Code, using the imaginary surfaces. In order to administer such a regulation, the Zoning staff requested a single GIS layer that indicates the height limit above the ground that a structure could be built for any given location. ArcGIS 10.2.2 was used to geoprocess the data. First, the 3D imaginary flight clearance surface was constructed. Next a bare earth DEM mosaic was created from a combination of LiDAR and SDMI elevation data. A buildable height layer was processed by comparing the imaginary surface to the bare earth DEM mosaic. ArcGIS Desktop 10.2.2 and ArcGIS Pro 2.0 were used to visualize the results.	**Tom Duncan** has been the GIS Coordinator for the Fairbanks North Star Borough since 2002, and loves his job! Tom spends the bulk of his time on web mapping, data management, and assisting Borough users and the public. Tom began playing with GIS in 1991, relational data bases in the mid-1980's, and has a B.S. in Environmental Planning from Western Washington University, 1982.		45 Minutes	Thursday 1:30 - 2:15 (K)
Riverine Mapping Using Unmanned Topo-Bathymetric Laser Profiling	Faux	Russ	Sr. Vice President	Quantum Spatial	The integration of progressively more sophisticated sensor packages into small unmanned airborne systems (sUAS) has greatly expanded the potential utility of sUAS for riverine mapping. One such sensor system is the RIEGL BDF-1 (or BathyCopter), which is comprised of a laser range finder (λ= 532 nm), an Inertial Measurement Unit (IMU), and a Global Navigation Satellite System (GNSS) receiver mounted on the RIEGL RiCOPTER unmanned aerial vehicle (UAV). Quantum Spatial, Inc. (QSI) worked with RIEGL to deploy the BathyCopter over three river reaches with active habitat assessments. In this presentation, we will focus primarily on a reach of the Willamette River, Oregon where we recently acquired airborne hydrographic laser scanning data from the Riegl VQ-880-G as part of a comprehensive bathymetric mapping project. We will review the results of these flights including the performance characteristics (depth, accuracy, repeatability) and limitations of the BathyCopter system in both natural resource and engineering applications.	**Russell Faux** is a Senior Vice President at Quantum Spatial and is responsible for the implementation of remote sensing technologies to map and analyze our natural environment. Mr. Faux has over 25 years of experience in the test and evaluation of airborne sensors including multi-mode radar, thermal infrared, hyperspectral, and LiDAR systems. Prior to Quantum Spatial, Mr. Faux was the founder and CEO of Watershed Sciences, Inc. and developed this company into one of the nation's leading airborne LiDAR providers. Mr. Faux holds a BS degree in Electric Engineering from Penn State and a MS degree in Bioresource Engineering from Oregon State University.		45 Minutes	Thursday 2:15 - 3:00 (KS/I)

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The Intersection Between Cad & GIS - A Panel Discussion	Joel Cusick & Lonesa Puckett (Moderators)				CAD is possibly the single most important software package to the surveyor. CAD draws and computes. Where CAD and GIS intersect is when GIS provides a vehicle to visually display the mapping executed in CAD, be it aerial photography, public utilities, roadways, topography or property/tax parcel information. CAD and GIS can work together, but great care has to be taken to have the CAD file spatially adjusted before either the surveyor or the GIS professional receives it. This panel will focus on the Geospatial intersection between CAD and GIS and discuss how our respective professions can learn to intersect better between our software.	**Lonesa Puckett** is the manager of cartography and drafting for TerraSond. She is an accomplished cartographer with over twenty-three years of experience. She has managed a team of technicians responsible for processing data in a variety of formats, producing documents, charts and digital data for numerous clients in the public and private sector. Some of these data types include historic reference documents, geophysical, LiDAR, hydrographic and topographic information. She has processed single beam bathymetry data using HYPACK software, and processed multibeam bathymetry data using CARIS HIPS & SIPS. Her GIS skills include generating and maintaining existing NOAA Electronic Navigational Charts (ENC's) using CARIS HOM and CARIS S-57 Composer, and training in ESRI ArcMap, ArcGIS and ArcCatalog. **Bill Preston**, PLS, GISP holds a B.S. in Geomatics from the University of Alaska Anchorage (UAA), and is a Professional Land Surveyor and certified GIS Professional. Bill has worked for R&M Consultants, Inc. since 2000, and is currently a Vice President with responsibility for managing the firm's GIS, Land Surveying and Right-of-Way Services Groups. Over the past 18 years, he has worked on nearly all of R&M's surveys with a GIS component or deliverable, routinely using different CAD and GIS software packages to deliver project data in a wide range of client specific formats. Bill has shared his expertise by teaching Civil 3D classes as an adjunct professor at UAA, and currently serves on the UAA Geomatics Advisory Board. **Tripp Corbin** is the CEO and a Co-founder of eGIS Associates, Inc. With over 20 years of surveying, mapping and GIS related experience, he is an industry expert with a variety of geospatial software packages including Esri, Autodesk and Trimble products. He authored the Learning ArcGIS Pro book from Packt Publishing and is currently working on another one. During the course of his career, Tripp has assisted with the implementation and development of GIS to support many activities including Tax Appraisal, Asset Management, Planning, Engineering, Emergency Response and more. Tripp holds multiple certifications including Certified GIS Professional (GISP), Esri Certified Enterprise System Design Associate and Esri Certified Desktop Professional as well as others. Tripp is the current Immediate Past President of URISA and a past President of Georgia URISA as well as being a member of the Alaska URISA Chapter. (Robert's bio might already be in because he's a short course instructor) **Robert Gadbaw** has over 25 years experience in the Civil/Surveying industry. He has worked as a consultant, trainer, draftmans, engineering technician and designer. For the past 10 years Robert has been traveling to Alaska training customers on the use of Civil 3D. Prior to that he lived in New Zealand where he owed an Autodesk Reseller and traveled the world training Civil Engineering and Survey companies. He was a regular instructor at Autodesk University for 7 years.	**John Sharrard** (Esri), **Robert Gadbaw** (Surveyors Exchange), **Bill Preston** (R&M Consultants), **Tripp Corbin** (eGIS Associates, Inc.)	90-minutes	Wednesday 3:30 - 5:00 (KS/I)
Measuring the Historical Footprint of Alaska's Mines	Geist	Marcus	Research Geographer	University of Alaska Anchorage - Alaska Center for Conservation Science	The Alaska Center for Conservation Science (ACCS) at the University of Alaska Anchorage (UAA), in partnership with the Northwest Boreal Landscape Conservation Cooperative (NWB LCC), embarked on a project to map and quantify the human footprint across interior Alaska and northwestern Canada. The goal was to build a seamless dataset that spanned international boundaries by stitching information from state, provincial and territorial entities in order to represent landscape intactness in the boreal ecosystem. Significant effort was expended on developing a comprehensive dataset defining mining's footprint across the region. Historically, mines have been depicted by point locations which do not convey their relative sizes or mining activity is represented by claims polygons which overestimate their actual footprints and have a recency bias. Using 2.5 meter ortho-imagery and 5 meter digital elevation data, ACCS embarked on project to digitize visible surface disturbance related to historic and current mining. Nearly 2000 source point locations were evaluated from the US Geologic Survey, British Columbia Ministry of Energy and Mines, and the Yukon Department of Energy, Mines, and Resources. The mining footprint dataset includes over 650 digitized polygons totaling 1200 square kilometers with a mean size of 1.8 sq kms. The footprints have been summarized at the watershed (USGS HUC10 – mean area 688 sq kms) scale across Alaska and at the coarse scale, sub-sub drainage unit (mean area 16,000 sq kms) within Canada. This dataset could help inform decisions regarding natural resource monitoring, identifying potential mitigation/restoration sites, and for conservation planning at watershed scales.	Over the past 25 years, **Marcus Geist** has worked across a wide range of environmental and natural resource sectors. His seventeen years of Alaskan project experience include using GIS for large site suitability analyses with the US Army, implementing NEPA and environmental permitting at USKH Inc., conservation planning in the Mat-Su Borough and Southwest Alaska with The Nature Conservancy, and conducting fish surveys within the Bristol Bay region. While working at UAA, he has generated maps for all 16 National Wildlife Refuges across Alaska, assembled a statewide stream temperature monitoring network (AKOATS - http://accs.uaa.alaska.edu/aquatic-ecology/akoats), and developed an anthropogenic footprint data package for the Northwest Boreal Landscape Conservation Cooperative (NWB LCC). Marcus earned a B.A. degree from Davidson College and a Masters of Environmental Management from Duke University.		45 Minutes	Friday 10:30 - 11:15 (KS/I)
Enabling tracking of wildlife incidents on a military installation using a custom javascript viewer	Gumpert	John	GeoBase Program Manager	673 Civil Engineering Squadron	Joint Base Elmendorf-Richardson encompasses approximately 73,000 acres on the north side of the Anchorage Bowl. This area contains two active military airfields, multiple live fire ranges and approximately 30 military training areas nestled in the southcentral wilderness. A myriad of wildlife inhabit JBER and interactions with base personnel are inevitable. The 673 CES Environmental Section asked the GeoBase personnel to develop an interactive method to track and visualize wildlife incidents reported and responded by the Conservation Law Enforcement section. This project used a custom javascript to develop the viewer. Here's how.	**John Gumpert** is the GeoBase Program Manager for Joint Base Elmendorf-Richardson, AK. He is the senior geospatial professional responsible for developing and maintaining all of the installation's geospatial data and associated web-based programming. He also is charged with integrating local data into the broader USAF database management programs. He is a Master Navigator with over 2200 flying hours in reconnaissance and training aircraft. He holds a B.S. in Biology from the University of Notre Dame, a M.A. in Computer Resource Management from Webster University, and a Certificate in GIS from UAA. A retired USAF officer with over 39 years combined government experience, his GIS stints include the Alaska Department of Natural Resources Division of Oil and Gas, Colorado State University's Center for the Management of Military Lands (CEMML), and he currently as a Department of Defense civilian employee. While data drives everything, he mostly likes making maps for his many customers.	**Dan Rosenbalm**	30 Minutes	Friday 1:30 - 2:00 (K)

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A Comparison of Digital Elevation Models from the ArcticDEM and SDMI Programs	Gurganious	Ben	Programmer	JOA Surveys LLC	ArcticDEM and the Statewide Digital Mapping Initiative (SDMI) are programs focused on developing Digital Elevation Models (DEM) of the Arctic and Alaska, respectively. The acquisition and data processing for these two programs is significantly different. The ArcticDEM program integrates imagery from multiple satellites then uses automated data processing routines to generate a Digital Surface Model using no ground control. The SDMI program generates a Digital Terrain Model from IfSAR data manually processed, positioned with ground control and validated with ground check points. JOA Surveys, LLC compared elevations from 436 ArcticDEM files to 1446 SDMI files and more than 650 ground check points. The comparisons were achieved using MATLAB, Java, VDatum, Python, ArcMap and Global Mapper. MATLAB was used for the analysis. Java was used for difference calculations and with NOAA's VDatum Tool for vertical datum transformations. Python was used with ESRI's arcpy module for projection transformations. Global Mapper was used for visualization. Both DEMs agree well (RMS less than 1.7m) with ground check points surveyed in open terrain on slopes less than 10 degrees. For terrain with larger slopes the differences significantly increase and regularly exceed 100 meters. The largest differences seem to occur in terrain with ice and water.	**Ben Gurganious** is a computer science student at University of Alaska Anchorage and a computer programmer at JOA Surveys, LLC in Anchorage, Alaska. With one year of part-time GIS experience, he performs some GIS work and develops software for internal automation at JOA Surveys. Ben first started learning computer science 4 years ago.	**Nathan Wardwell**	30 Minutes	Friday 3:30 - 4:00 (KS/I)
What did the biologist/ecologist just give me?	Hamfler	Cindy	GIS Specialist	BLM	A brief look at R software (and GME), and how it is different than and used as a GIS. Receiving, deciphering and avoiding pitfalls with data output from R. And maybe a hint of R and ArcGIS Pro integration.	**Cindy Hamfler** has worked as a GIS Specialist for the Bureau of Land Management in Fairbanks for fifteen years. She is a GISP and has degrees in Geography/Environmental Science(UCLA) and Remote Sensing(University of New South Wales). Wildlife data were the initial hook for getting into the GIS field and wildlife has been the reason for recent forays into R software.		30 Minutes	Wednesday 4:00 - 4:30 (K)
Managing and Distributing Large Elevation Datasets in Alaska	Hendricks	Mike	Geospatial Analyst	State of Alaska - Division of Geologic and Geophysical Surveys (DGGS)	Elevation data and its derived products are critical datasets for geologists, as well as for many other scientific and general users. In light of this critical need, the Alaska Division of Geological & Geophysical Surveys (DGGS) manages and hosts elevation services the "Elevation Datasets in Alaska" web application, http://elevation.alaska.gov. The web app allows users to view and download all known, publicly available LiDAR, SfM and IfSAR elevation-based datasets covering Alaska. To date there is more than 150 elevation projects consisting of over 800 datasets exceeding 5Tb of files available for download. DGGS recently completed a major update to both the front and back end of their system to management and distribution this large volume of data. This presentation will discuss various technical and procedural aspects of this system. Topics will include; (a) an overview of the software and data components of the DGGS Elevation Management System, (b) considerations when storing large volumes of data, (c) procedures for effectively employing Mosaic Datasets, Image Services, and Processing Functions to manage both source and derived elevation products, (d) Techniques for optimizing service draw times, and (d) web map visualization and user experience considerations.	**Mike Hendricks** is a geospatial data manager and analyst with the Alaska Division of Geological and Geophysical Surveys (DGGS) in Fairbanks, where he develops, builds, and maintains geospatial databases and services to support a wide range of internal and external users. One of his primary tasks is to manage, process, and distribute through web services all publically available elevation data in Alaska as part of the "Elevation Datasets in Alaska" web application. Mike is also an adjunct professor with University of Alaska Anchorage's Department of Geomatics where he teaches an online course on Spatial Data Structures. He has a PhD in Spatial Information Engineering from the University of Maine and over twenty years of geospatial experience. Previous to his position with the DGGS, Mike served on the faculty of the United States Military Academy's Geospatial Information Science Program, at West Point New York, where he taught GIS, designed cartographic products, and conducted applied research in land navigation education using location-based technology.		1 Hour	Wednesday 10:30 - 11:30 (K)
Telling Stories and Asking Questions with Esri Story Maps	Holtan	Meghan	Senior Associate	Agnew Beck Consulting	This presentation shares the many uses of Esri's web based Story Map templates. We will focus on how they can be used during planning and development projects to share information and ask for the public's opinion. We will discuss how to make an effective Story Map, from selecting a topic and gathering content to building the story and measuring use. While this presentation includes the technical aspects of how to build a Story Map, the we will focus on the story that makes your geographic data come alive. This presentation includes a live demo of Esri's Story Map Cascade template.	**Meghan Holtan** is a senior associate at Agnew::Beck Consulting, where she is the creative and analytical force behind many of Agnew::Beck's planning projects. She has designed and deployed Story Maps for the City of Boise and Cook Inlet Housing Authority. She believes Story Maps provide a fun and easy entry to the world of GIS for both designers and users alike.		1 Hour	Friday 9:00 - 10:00 (KS/I)

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Kenai Peninsula Vegatation Mapping Partnership	Homan	Kim	Geospatial Program Manager	Alaska Region, USDA Forest Service	During 2016 the US Forest Service partnered with multiple levels of government and non-profit organizations to create an updated existing vegetation map for the Kenai Peninsula. In the summer of 2017, the partnership collaborated on a very successful field season, using Survey123 for ArcGIS, Collector for ArcGIS and ArcGIS Online. During this presentation we will give a broad overview of the vegetation mapping process, demonstrate the technology used and discuss the final product, due in the fall of 2018.	**Kim R. Homan**, GISP, is the Geospatial Program Manager for the Alaska Region, USDA Forest Service. With more than 20 years of geospatial experience, she has worked for federal, tribal, state, county and city governments. She is an active member of the Alaska Geospatial Council's Technical Advisory Group, the Alaska Hydrography Technical Working Group, the Alaska Vegetation Technical Working Group and the Southeast Alaska GIS User Group. **Dustin Wittwer** is the Remote Sensing and GNSS Specialist for the USDA Forest Service, Alaska Region. He has served as a Geospatial Specialist for the Alaska Region since 2011 and for State and Private branch of the Forest Service for the earlier portion of his career. Dustin is a member of the Alaska Elevation, Imagery and Vegetation Technical Working Groups and the Southeast Alaska GIS User Group. **Melinda Lamb**, is the WebGIS and Mobile GIS specialist for the USDA Forest Service, Alaska Region. She has served as a Geospatial Specialist for the Alaska Region since 2016. Prior to that she worked for State and Private branch of the Forest Service as a biological technician focusing on invasive plant surveys, insect and disease aerial surveys and yellow-cedar decline research. **Erik Jackson** is the GIS Coordinator for the Chugach National Forest, where he has served since 2012. He has over 15 years of experience as a Geospatial professional in Alaska, including previous positions as GIS Coordinator for the US Army Alaska and GIS Analyst with the Air Force GeoBase program.	**Dustin Wittwer**, Remote Sensing Coordnator **Melinda Lamb**, Web GIS & Mobile Data Collection Specialist **Erik Jackson**	30 Minutes	Friday 2:00 - 2:30 (K)
ADNR Web Services Hosted - A Year in Review	Hopwood	Drew	Technical Director	GeoNorth Information Systems (GNIS) A subsidiary of The Tatitlek Corporation	For nearly a year GeoNorth has been host and streaming the statewide ortho imagery along with numerous other imagery datasets for the Alaska user community under contract with the Alaska Department of Natural Resources (DNR). Marking the first time these datasets have been hosted by a commercial entity. This presentation will provide an overview of the hosting and streaming services GeoNorth is providing to the user community. We will discuss how the system and software have been optimized to provide the highest quality service. We will provide an in-depth dive into the usage statistics, to include not only the overall statistical usage summary, but also maps and graphics detailing where imagery service are being requested and what datasets are being viewed. The presentation will wrap up with information on how users can submit imagery to be hosted for use by the whole community and a look to future capabilities.	**Drew Hopwood** has over 15 years of experience working in the Geospatial industry and currently serves as the Technical Director at GeoNorth Information Systems (GNIS). Previously he has held Sales Engineer, Project Manager and Satellite Programmer positions. For the past 10 years Drew has been supporting the SDMI ortho imagery program, providing his expertise and support of commercial imagery solutions. Drew managed the collection of the source 2.5m Spot 5 imagery used to produce the statewide ortho imagery. Drew oversaw the processing of the new, SDMI-refresh 1.5m imagery from the Spot6 and Spot 7 satellites. Most recently, Drew is managing the hosting of the DNR Imagery Services, providing OGC-compliant streaming services and technical support to the Alaska Geospatial community.		30 Minutes	Friday 2:30 - 3:00 (K)
From fossils to glaciers: Structure from Motion (SfM) in the Parks	Hults	Chad	Alaska Regional Geologist	National Park Service, Alaska Regional Office	The NPS Alaska Regional office has been developing SfM capabilities to support NPS science and outreach. These projects range in scale from 3D models of fossils and artifacts to digital elevation models (DEM) and orthomosaics of glaciers, rivers, and coasts. SfM was first applied to small objects to bring the park collections out of the archives onto the web as a virtual museum (https://sketchfab.com/alaska_nps_geology). This last year we collaborated with colleagues in the FWS and BLM to develop an aerial SfM system. Aerial SfM is an accessible tool for NPS units in Alaska where mobilization is expensive to reach the remote areas of Alaska National Parks. Using agency planes and pilots, a high-quality camera, and a survey-grade GPS; aerial SfM provides an accessible and cost-effective tool for generating accurate DEMs and high-resolution orthomosaics. In our first summer, we've used the aerial system to measure glacier volume changes, ice-dammed lake level changes, changes in river morphology, and intertidal elevations. To demonstrate the scalability and applicability of SfM to NPS resources needs, thee examples will be presented: 1) Creating a "virtual museum" of fossils and artifacts from Katmai, Lake Clark, and Bering Land Bridge; 2) Detecting landslides and glacier change in Kenai Fjords; 3) Generating detailed intertidal DEMs along the coasts of Katmai and Lake Clark. These projects have proven that SfM is an accessible, scalable technology that is useful for educating the public about the resources of Alaska National Parks and addressing management needs.	**Chad Hults** has been working as a geologist at the NPS Alaska Regional Office providing geological technical assistance to Parks since 2014. Prior to this, he spent eight years at the USGS mapping the state of Alaska, and five years at Denali National Park. He has experience geologic mapping, reclaiming streams, glacier monitoring, permafrost and soils mapping, surficial geologic mapping, monitoring landslides. Through his career he has learned survey techniques using total station, PPK GPS, and RTK GPS. These skills, in addition to being an amateur photographer, helped with developing SfM capabilities for the NPS Alaska Region. **Tahzay Jones** is the Oceans and Coastal Programs coordinator for the National Park Service. His research has been focused on coastal change and hazards. Recent work includes implementing structure from motion and surveying strategies to tie physical, chemical, and biological structures and processes together for coastal assessments. **Sarah Venator** has been a geologist with the National Park Service Alaska Regional Office since 2010. Recently she and others at the National Park Service have utilized Structure-from-Motion and RTK for applications such as glacier monitoring and coastal geomorphological change assessment. Prior to NPS, she worked for three years with the UNAVCO Plate Boundary Observatory project.	**Tahzay Jones Sarah Venator**	30 Minutes	Thursday 4:00 - 4:30 (K)
Expanding Your GIS Audience Through Branding and Design	Jackson	Amber	Lead GIS Analyst	Municipality of Anchorage	Make your data and maps more approachable by utilizing design, branding and categorization. Through developing a brand, thematic icons and categorizing information, data and maps can become more accessible to the masses. This will look at how MOA GIS has progressed the branding and design for maps and data over the past 12 months in an attempt to increase the overall user-base and simply locating and utilizing sought after information.	**Amber Jackson** is a Lead GIS Analyst for the Municipality of Anchorage as part of the Geographic Data and Information Center. As part of a small centralized team, Amber works on a variety of projects from data management to front end application configurations and design. Prior to working for the MOA, she was a lead geographic analyst for Expedia in Bellevue, WA, managing geographies for Asia and the South Pacific.		30 Minutes	Thursday 9:15 - 10:00 (K)

Presentation Title:	Last Name	First Name	Job Title	Company / Organization	Abstract:	Bios	List Co-Presenters:	Notes	Day/Time
ArcGIS Online in MOA Parks & Rec	Keegan	Taylor	Park Planner	Municipality of Anchorage	This presentation will focus on the multiple ways the Parks and Recreation Department has implemented ArcGIS Online in collaborating with outside organizations, internal management strategies, strategic planning documents, and informing the public on user information and project updates. This presentation's intent is to discuss how a large and diverse department has utilized AGOL to become more collaborative, efficient, more cohesive and better at communicating with the public on its operations and assets. More specifically, this presentation will discuss the Ski Grooming Map updates implemented with a tabbed storymap, the Inclusive Play Strategic Plan, Project Update Storymaps made in partnership with Anchorage Park Foundation, and a brief discussion on the use of collector in tracking homeless camp cleanup efforts and interdepartmental collaboration.	**Taylor Keegan** joined the planning team in June 2015 from Philadelphia, Pennsylvania. She received her undergraduate degree in Political Science from the College of Wooster and her Master of Landscape Architecture from Temple University with special focus in ecological restoration and public lands. Taylor has a diverse résumé; most recently working for the Botany department in Denali National Park and Yukon Charley National Preserve, which established her love for the Alaskan wilderness. While pursuing her MLA, she worked on landscape performance metrics with storm water management within Philadelphia, waterfront redevelopment in Reading, Pennsylvania, and streambank restoration projects across Pennsylvania and New Jersey. **Josh Durand** joined the Parks and Recreation planning department in October of 2010. Growing up in Anchorage, he spent his youth exploring and developing his appreciation and connection with outdoor places. This connection with the outdoors started his career path in the green industry that has ranged from residential landscape & garden improvements to million dollar outdoor pool facilities. Josh received a B.S. degree in landscape horticulture after leaving degree paths in fine arts and landscape architecture. Upon graduating he worked in the landscape design industry in the greater Denver area for the first 1o years of his career. Now he truly enjoys his daily tasks of improving the outdoor assets that he, his family and the entire Anchorage community are blessed with.	**Josh Durand** (MOA Parks Superintendent)	45-minutes	Thursday 11:00 - 11:30 (K)
AELS Board - Licensing Requirements for Mapping	Kerr	John	Business Manager	SurvBase, LLC	The State of Alaska Board of Architects, Engineers, and Land Surveyors (AELS) is charged with overseeing registrants and regulated activities related to architecture, engineering, land surveying, and landscape architecture as defined in Alaska statutes and administrative code. The definition of land surveying includes many activities related to mapping regardless of the technology used. This Geojam session will take a technical look at the definition of the practice of land surveying per Alaska Statute 08.48.341(14). We'll discuss various measuring and mapping activities, whether an activity falls under the statutory definition of the practice of land surveying, and, if required, how to get licensed/registered. Benefits of registration will be discussed as well as some of the risks of practicing without being registered.	**John Kerr** currently serves on the Alaska Board of Registration for Architects, Engineers, and Land Surveyors (AELS Board). Mr. Kerr is a licensed professional land surveyor who has practiced throughout Alaska for the past 30+ years. He is also a Certified Federal Surveyor (CFedS). He has worked in the private sector, for the State of Alaska Dept. of Transportation, for the Alaska Native Tribal Health Consortium, and for the past 8 years has been part owner of a geomatics (surveying and mapping) firm. He is active with the National Council of Examining Engineers and Surveyors (NCEES), National Society of Professional Land Surveyors (NSPS) and the Alaska Society of Professional Land Surveyors (ASPLS). **Dave Hale** is a licensed land surveyor in Alaska, and holds an A.A.S. in Surveying and Mapping from the University of Alaska, Anchorage, and a B.S. in Organizational Management from Alaska Pacific University. He began his survey career in 1992, working for the Bureau of Land Management and the USDA Forest Service before moving to private consulting in 1999. He is currently serving in his second term as one of two land surveyors on the Board of Registration for Architects, Engineers, and Land Surveyors.	**Dave Hale** (R&M Consultants)+L26	60 Minutes	Friday 8:00 - 9:00 (K)
Elevation Certificates in Alaska and the Paradox of Static Vertical Flood Datums	Kinsman	Nicole	Alaska Regional Advisor	NOAA National Geodetic Survey	Flood mapping depends on vertical accuracy, but what happens when there is ambiguity about the vertical reference datum itself? This presentation contains three parts: case studies from Alaska that highlight the importance of well-defined heights, immediate real-world guidance on vertical metadata for surveyors and floodplain specialists, and a what the upcoming 2022 geopotential datum that will replace NAVD88 will mean for the National Flood Insurance Program. Case studies from two locations (Cordova and Juneau, Alaska) illustrate the challenges and importance of capturing critical metadata associated with every topographic measurement, Base Flood Elevation, and water level. The case study locations are places where the land is undergoing rapid vertical motion of up to 2 cm/yr on average, with occasional and sudden seismically-induced shifts. This dynamic motion adjacent to rising global sea levels results in extreme variation in the local relative sea level trends, injecting complexity into local flood mapping and uncertainty into regulatory activities. The second part of the presentation includes a summary of best practices for appropriately documenting the vertical reference datum on new Elevation Certificates in areas undergoing vertical land motion and in places where tidal datums define the Base Flood Elevations. These best practices also encompass guidance on how to conduct datum transformations and provide reliable datum conversion factors for inclusion in Flood Information Studies. In the last part of this presentation, a preview of the North American-Pacific Geopotential Datum of 2022 (NAPGD2022) demonstrates changes to the National Spatial Reference System that will better accommodate vertical motion in the determination of heights. This overview will focus on how NAPGD2022 is defined, how it will be accessed by surveyors and other geospatial professionals, how it relates to tidal datums, and ways that it will affect flood mapping activities. The modernization of our vertical reference surface will present new opportunities for accurate mapping in coastal areas that are undergoing relative seal level change and the National Geodetic Survey is working with FEMA to prepare for modernizing vertical datum guidance in preparation for the changes in 2022.	**Nicole Kinsman** is Alaska's Regional Advisor at NOAA's National Geodetic Survey (NGS). Based in Anchorage, she serves as our local point of contact for NGS and is available to provide technical guidance on geospatial positioning topics in support of activities such as mapping and charting, navigation, flood risk determination, transportation, land use and ecosystem management. She formerly managed the State of Alaska DGGS Coastal Hazards program, and is an affiliated faculty member at the University of Alaska Fairbanks.		30 Minutes	Wednesday 3:30 - 4:00 (K)

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The Yup'ik Environmental Knowledge Project	Knapp	Michael	Owner	Blue Skies Solutions, LLC	Calista Education and Culture (CEC) is a non-profit organization representing the 1,300 Yup'ik tradition bearers of the Yukon-Kuskokwim delta in southwest Alaska. It is the major research organization for the region and is active in documenting the traditional knowledge of the Yup'ik people. Since 2000, these cultural documentation efforts, supported in part by grants from the National Science Foundation and guided by an Elders Committee, have resulted in ten major publications, a museum exhibit, and many public presentations. A centerpiece of this work is an interactive atlas website that includes spatial data and story telling using documents and multimedia. The site is powered by an open source atlas development platform co-developed & hosted by researchers at the National Snow & Ice Data Center (NSIDC) by the "Exchange for Local Observations & Knowledge of the Arctic" (ELOKA) program. This website is, for CEC, an exciting new way to share what we have been learning and to make available the results of our work with Elders and community members in Bering Sea coastal communities. CEC's Elders Committee continually reminds us that it is our responsibility to share what they teach us. This presentation will highlight some of our work and discuss the data gathering process, database development, and mapping tools used to manage and present cultural information. Visit the project website at: http://eloka-arctic.org/communities/yupik/	**Michael Knapp** is an independent GIS consultant who owns and operates Blue Skies Solutions, LLC, which began in 2003. He has a Master's Degree from Indiana University in Environmental Science and started his GIS career by modeling surface water flow in rural Indiana watersheds. In addition to project work, Michael has also taught over 75 introductory and intermediate GIS classess across Alaska. He is a certified GISP and also a certified Esri Desktop Associate.	Ann Fineup-Riordan Peter Pulsifer Chris McNeave	45-Minutes	Thursday 2:15 - 3:00 (KS)
GIS & the Creative Economy	Martinez	George	Special Assistant: Education; Youth Development; Diversity and Economic Development	Municipality of Anchorage	GIS is an integrating technology; a creative economy is an idea integrator, bringing together artists, recreation and businesses for a thriving community. Learn how Anchorage is encouraging developing of the creative economy, and how GIS plays a role in data organization, public communication and coordination.	**George Martinez**, Special Assistant to Anchorage Mayor Ethan Berkowitz for education, youth development, diversity and economic development. George has over 20 years experience in developing and growing creative economy initiatives and has served as a Cultural Envoy for the US Department of State since 2007. George is a civil society member of the United Nations Alliance of Civilizations, a two time NYC Union Square award winner and the founder of the Anchorage Artists Co-op. He is the co-author/ editor of, "The Organic Globalizer: Hip Hop, Political Development and Movement Culture" (Bloomsbury).		30-minutes	Thursday 10:30 - 11:00 (K)
UAS in National Parks: the Alaska Region Program, Projects, and Potential Partners	Schroeder	Britta	GIS Specialist	National Park Service	In 2016, the Department of Interior authorized the establishment of two Unmanned Aircraft System (UAS) programs in the National Park Service (NPS) - one in Grand Canyon and the other in the Alaska Region. Two of the NPS UAS pilots from the Alaska Region will present a status update on the existing UAS programs, with a focus on Alaska. The talk will include a summary of the Department of Interior UAS program, NPS and FAA regulations of NPS land and air, the capabilities of the current NPS fleet vehicles and sensors, and examples of the various photogrammetric and mapping projects with successes and lessons learned. The presentation will wrap up with discussion on the upcoming projects the potential applications of technological developments, and the future of UAS in Alaska parks and the NPS. The audience for this talk includes commercial entities and agency/university employees with an interest in conducting UAS flights from or over National Parks.	**Britta Schroeder** Britta Schroeder is the GIS Specialist for Denali National Park and Preserve, as well as a UAS Pilot for the National Park Service. She most recently served as both GIS Specialist/UAS pilot in response to Hurricane Harvey (Texas) and Hurricane Maria (U.S. Virgin Islands). She initially joined the NPS in 2011 while earning her M.S. in Natural Resource Management from the University of Alaska Fairbanks (2014). She holds a B.S. in Forest Management from Colorado State University (2004) and worked in Southeast Alaska for the US Forest Service for seven years prior to working for the NPS.		45 Minutes	Friday 11:15 - 12:00 (K)
My Neighborhood replacement	Matthews	Ken	Lead GIS Analyst	Municipality of Anchorage	The Municipality of Anchorage provides a "My Neighborhood" web map that displays various locations and services throughout the city. The map was dependent on enterprise systems that are scheduled to be retired, so it needed to be rebuilt using the new enterprise systems. The site was migrating from a custom developed application to a configure-only ArcGIS Online web application using Web AppBuilder. The project included obtaining current GIS data and setting up processes to update and maintain the data in the future.	**Ken Matthews** is a Lead GIS Analyst with the Municipality of Anchorage where he is involved in developing and managing the city's enterprise GIS and applications. He has worked as a GIS Programmer Analyst in Alaska for the past 9 years. He has worked on a wide range of projects from developing custom GIS tools to managing and analyzing data for environmental studies across the state.		30 Minutes	Thursday 8:30 - 9:15 (K)
Overview of MOA GIS Program	Miller	Christina	Geographic Information Officer	Municipality of Anchorage	GIS is a transformational technology for governments working to become Smart Cities. The Municipality of Anchorage has embarked on a new GIS program, fixing the foundational GIS infrastructure and process issues and increasing access to the public and municipal departments. In the past year, the new Geographic Data and Information Center, housed in the Office of Economic and Community Development, in coordination with the GIS Technical Team, a cross-departmental team of users and developers, has been able to automate over 8,000 map pdf exports, and produce web mapping applications that provide access to the public to view, query, draw, print and download public information, such as property ownership, hazards mapping, and information about the government of the Municipality of Anchorage.	**Christina (Tina) Miller**, P.E. has over 25 years of experience as an engineer and biologist, specializing in business process improvements and efficiencies in asset management through spatial integration. Across the course of her career, Tina has utilized data and data modeling to achieve business process efficiencies and is bringing this approach as leader of the newly formed Geographic Data and Information Center for the Municipality of Anchorage. She was appointed last year to serve as the Geographic Information Officer for the Municipality of Anchorage. Previously, she served as the Strategic Asset Services Manager at Anchorage Water and Wastewater Utility (AWWU), the GIS Supervisor at AWWU, and as a consulting engineer, biologist and data specialist. She has applied this to water and sewer master planning, utility operations and maintenance programs, information systems integration, water and wastewater hydraulic modeling, advanced utilities asset management practices, field sampling programs for biological evaluations, and Alaska's rural energy cost equalization program.		45-minutes	Thursday 8:00 - 8:30 (K)

Presentation Title:	Last Name	First Name	Job Title	Company / Organization	Abstract:	Bios	List Co-Presenters:	Notes	Day/Time
Advanced Field Applications for ArcGIS	Moore	Scott	Solution Engineer	ESRI	Learn how to use ArcGIS apps to help plan, coordinate, run and monitor field operations. This session will show you how to integrate Workforce for ArcGIS together with Navigator, Collector, Survey123 and Operations Dashboard to optimize field work.	**Scott Moore** is a Solution Engineer with Esri and currently works in the Olympia regional office. He focuses on assisting Esri software users with architecture design, application development and technical advice for deploying ArcGIS. Mr. Moore's areas of expertise include web mapping, server based GIS, developer technologies, and making spatial technology available to everyone. He has been with Esri since 2006. He earned a bachelor's degree in Geography with a focus on GIS from the University of Washington in Seattle in 1998. Prior to joining Esri, he was a Senior GIS Analyst and GIS Manager for the City of Chandler, Arizona where he built the City's Enterprise GIS. **John Sharrard** is a Solution Engineer with Esri and currently works in the Northwest with Esri's Local Government customers. John Graduated from Oregon State University with a degree in Geography. John has been with Esri for twenty-three years. Prior to joining Esri, he was a Senior GIS Analyst for the State of Oregon for seven years.	**John Sharrard** (esri)	60-minutes	Thursday 9:00 - 10:00 (KS/I)
ArcGIS Enterprise 10.5: The What, Why and How – Ask the Pro's	Moore	Scott	Solution Engineer	ESRI	This ArcGIS Enterprise (formerly ArcGIS for Server) discussion is geared toward people who are familiar with ArcGIS Server, and want to better understand where Esri is headed with ArcGIS Enterprise and "WebGIS." It is complimentary to the 4-hour short course with the same name and will also be presented in a 'town hall' format by two of Esri's solution engineers. ArcGIS Enterprise includes several software components that are designed to work together. A foundational setup of ArcGIS Enterprise consists of a number of these components configured in a certain way; this is called a base ArcGIS Enterprise deployment. Come to this session to learn about these components, address your questions, and develop your own plans for Enterprise deployment at your organization.	**Scott Moore** is a Solution Engineer with Esri and currently works in the Olympia regional office. He focuses on assisting Esri software users with architecture design, application development and technical advice for deploying ArcGIS. Mr. Moore's areas of expertise include web mapping, server based GIS, developer technologies, and making spatial technology available to everyone. He has been with Esri since 2006. He earned a bachelor's degree in Geography with a focus on GIS from the University of Washington in Seattle in 1998. Prior to joining Esri, he was a Senior GIS Analyst and GIS Manager for the City of Chandler, Arizona where he built the City's Enterprise GIS. **John Sharrard** is a Solution Engineer with Esri and currently works in the Northwest with Esri's Local Government customers. John Graduated from Oregon State University with a degree in Geography. John has been with Esri for twenty-three years. Prior to joining Esri, he was a Senior GIS Analyst for the State of Oregon for seven years.	**John Sharrard** (Esri)	60-minutesr	Wednesday 10:30 - 11:30 (KS/I)
Introduction to the ArcGIS API for Python	Moore	Scott	Solution Engineer	ESRI	This session is intended for those who are interested in exploring Esri's new Python library for working with maps and geospatial data, powered by web GIS – and who are unable to attend the 4-hour short course earlier in the week. Come to this session to get an overview of The ArcGIS API for Python which provides simple and efficient tools for sophisticated vector and raster analysis, geocoding, map making, routing and directions, as well as for organizing and managing a GIS with users, groups and information items.	**Scott Moore** is a Solution Engineer with Esri and currently works in the Olympia regional office. He focuses on assisting Esri software users with architecture design, application development and technical advice for deploying ArcGIS. Mr. Moore's areas of expertise include web mapping, server based GIS, developer technologies, and making spatial technology available to everyone. He has been with Esri since 2006. He earned a bachelor's degree in Geography with a focus on GIS from the University of Washington in Seattle in 1998. Prior to joining Esri, he was a Senior GIS Analyst and GIS Manager for the City of Chandler, Arizona where he built the City's Enterprise GIS.		45 Minutes	Thursday 1:30 - 2:15 (KS/I)
ArcGIS Pro "Ask the Pro's"	Moore	Scott	Solution Engineer	Esri	Esri's next-gen 64-bit desktop GIS product is ArcGIS Pro. Technologically ahead of everything else on the market, ArcGIS Pro provides professional 2D and 3D mapping in an intuitive user interface. You can think of ArcGIS Pro as a big step forward—one that advances visualization, analytics, image processing, data management, and integration. This unusual Q&A session will be hosted in a "town hall" format by two of Esri's most experienced solution engineers. Potential topics (you get to decide) that could be discussed; Migration to ArcGIS Pro, Licensing options for ArcGIS Pro, Recommended training paths for ArcGIS Pro, Current limitations of ArcGIS Pro. ArcGIS Pro software development plans, Customizing ArcGIS Pro. Bring your ArcGIS Pro questions to the session and have your voice heard.	**Scott Moore** is a Solution Engineer with Esri and currently works in the Olympia regional office. He focuses on assisting Esri software users with architecture design, application development and technical advice for deploying ArcGIS. Mr. Moore's areas of expertise include web mapping, server based GIS, developer technologies, and making spatial technology available to everyone. He has been with Esri since 2006. He earned a bachelor's degree in Geography with a focus on GIS from the University of Washington in Seattle in 1998. Prior to joining Esri, he was a Senior GIS Analyst and GIS Manager for the City of Chandler, Arizona where he built the City's Enterprise GIS. **John Sharrard** is a Solution Engineer with Esri and currently works in the Northwest with Esri's Local Government customers. John Graduated from Oregon State University with a degree in Geography. John has been with Esri for twenty-three years. Prior to joining Esri, he was a Senior GIS Analyst for the State of Oregon for seven years.	**John Sharrard** (Esri)	1 Hour	Wednesday 1:30 - 2:30 (KS/I)

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What's New in ArcGIS - 2018	Morganson	Terri	Account Manager	Esri	We'll take a quick look at some of your work, let you know what we at Esri have been working on & what's new, and provide a glimpse at the road ahead. We, at Esri, believe The Science of Where can unlock data's potential in every organization and look forward to talking with you about this at the 2018 Alaska Surveying & Mapping Conference.	**Terri Morganson** is an account manager at Esri working with state government customers in Alaska and Oregon along with local governments across Alaska. Her role is to promote Esri's culture, objectives, mission and vision such that Esri technology users are realizing full success. She has been with Esri since 2003.		1 hour	Wednesday 8:45 - 9:45 (KS/I - K)
Spatial Data Standards: Army vs Air Force	Nelson	Dawn	GIS Coordinator	Colorado State University	The military uses Spatial Data Standards for keeping data complete and organized. Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE) is a Department of Defense (DOD) group of spatial standards and models to support common implementation and interoperability between installations. Several similarities and differences can be noted in these standards between the Army and Air Force data shared at Joint Base Elmendorf –Richardson.	**Dawn Nelson** has 15 years experience with GIS, mapping, and remote sensing. She graduated with her Masters of Applied Geography from New Mexico State University in 2007. Since then, she has worked in Germany and moved to Alaska in 2013. Dawn works for Colorado State University as the GIS Coordinator for the U.S. Army Alaska Training Support Activity at Joint Base Elmendorf - Richardson.	**John Gumpert** (GeoBase Program Manager, JBER)	30 Minutes	Friday 4:00 - 4:30 (K)
Speaking different languages: MGRS vs Lat/Long	Nelson	Dawn	GIS Coordinator	Colorado State University	Maps serve many different purposes, but all maps are used for some kind of position. The military uses a different standard than most people, which some may find difficult or odd to use. This brief will discuss the differences between the Military Grid Reference System (MGRS) versus latitude and longitude.	**Dawn Nelson** has 15 years experience with GIS, mapping, and remote sensing. She graduated with her Masters of Applied Geography from New Mexico State University in 2007. Since then, she has worked in Germany and moved to Alaska in 2013. Dawn works for Colorado State University as the GIS Coordinator for the U.S. Army Alaska Training Support Activity at Joint Base Elmendorf - Richardson.		30 Minutes	Wednesday 2:30 - 3:00 (K)
Mapping People: Using GIS for Spatial Analysis of Illnesses and Behavior Risk Factors in Alaska	O'Brien	David	Public Health Data Analyst	Alaska Cancer Registry, AK Department of Health and Social Services	In previous years, GIS was not widely used in the Alaska Department of Health and Social Services (DHSS), with perhaps a half-dozen people in the department with GIS experience. But in 2015, DHSS's Division of Public Health received a grant from the U.S. Centers for Disease Control and Prevention (CDC) for GIS training. The grant enabled 2 GIS trainers from Rice University to travel to Alaska to present 9 days of classes spread over 3 sessions in February, March, and June of 2016. As a result of this training, 24 DHSS employees and several public health partners received GIS I, II, and III training using Esri's ArcGIS. It was the first such training specifically for public health in Alaska. Much of the work done in DHSS involves tracking the incidence and mortality of acute and chronic illnesses, as well as the behavior risk factors that can contribute to illnesses. Statistics on incidence (new cases), mortality (deaths), and prevalence (current cases) are calculated and presented as rates, often as per 100,000 people in a population. Some data are suppressed if there are too few occurrences to protect patient confidentiality and because rates become too unstable. In these cases, data are often aggregated within categories (such as year, age group, or geographic area) to increase the number of occurrences and make the rates more robust. A few examples of the many public health concerns to DHSS are cancer, heart disease & stroke, and tobacco use. Being able to use GIS as a spatial analysis tool in public health is a great help to DHSS in its mission to "promote and protect the health and well-being of Alaskans". This session will showcase maps that were produced during the DHSS GIS training, as well as maps that were made after the training. Presentations will focus on the stories the maps tell about public health, how they illustrate health disparities by geographic region, and how the maps can be used to promote DHSS's mission.	**David O'Brien** received his PhD in geology and geophysics from the University of Hawaii in Honolulu. He has been the Data Analyst of the Alaska Cancer Registry in the state Department of Health and Social Services for the last 19 years. He conducts statistical analysis of the Registry's data and produces various data reports, such as cancer cluster studies for concerned communities. He maintains the Registry's databases, processes all incoming and outgoing electronic cancer data, and conducts data quality control. He is a past chair of the GIS Committee of the North American Association of Central Cancer Registries and currently a member of its Spatial & Demographic Data Workgroup and Uniform Data Standards Workgroup. In 2004, David was the first person in Alaska to become a Certified GIS Professional ("GISP") through the GIS Certification Institute. **Mary Jeanne Danison** is an Analyst Programmer for the State of Alaska and provides support to software applications within the Department of Health and Social Services. She is the technical lead for the Women, Infants and Children System. MJ has been involved in the Department of Health and Social Services' efforts to bring more GIS resources to the Divisions. Excited by the power of GIS to help make strategic decisions with decreasing budgets and dwindling resources, she pursues continuing education in GIS to help advance opportunities in spatial analysis of healthcare data. **Deborah Hull-Jilly** has been employed by the Alaska Department of Health and Social Services, Division of Public Health since 1996. She is a graduate of University of Washington with a Master's degree in Public Health and has nearly 35 years of experience in the healthcare industry. Deborah began her career as an Injury Prevention Specialist/Injury Epidemiologist. From 2003 to 2005, she was Acting Chief for the Section of Injury Prevention and Emergency Medical Services (EMS) (formerly the Section of Community Health and EMS). In her current position, Deborah is the Health Program Manager/Injury Epidemiologist for the Injury Surveillance Program in the Section of Epidemiology and the Principal Investigator for the Alaska Injury Surveillance Program, the Alaska Violent Death Reporting System, and the Alaska Prescription Drug Overdose: Data-Driven Prevention Initiative grant. **Abigail Newby-Kew** is a Maternal and Child Health Epidemiologist and has been with the State of Alaska Section of Women's, Children's, and Family Health for four years. She is currently the evaluator for the Alaska Breast and Cervical Health Check Program. In addition, she conducts research on the surveillance of child abuse and neglect, neonatal abstinence syndrome, and home visiting programs. Prior to joining the section, Ms. Newby-Kew worked with "Saving Mothers, Giving Life", an initiative aimed at reducing maternal and newborn mortality in sub-Saharan Africa. **Amy Shaw** is a Project Assistant and has supported the disease prevention efforts of the Section of Chronic Disease Prevention & Health Promotion (CDPHP) for 4 years. She has recently completed the CDC-sponsored Rice University GIS course and is a founding member of the CDPHP GIS Workgroup that supports the Section's various mapping projects.	**Mary Jeanne Danison** (State of Alaska) mj.danison@alaska.gov **Deborah Hull-Jilly** (AK DHSS) deborah.hull-jilly@alaska.gov **Abigail Newby-Kew** (AK DHSS) abigail.newby-kew@alaska.gov **Amy Shaw** (AK DHSS) amy.shaw@alaska.gov	45 Minutes	Thursday 11:15 - 12:00 (KS/I)

Presentation Title:	Last Name	First Name	Job Title	Company / Organization	Abstract:	Bios	List Co-Presenters:	Notes	Day/Time
Lessons learned from the development process of a custom Android app for Three-Wire Optical Levels	Oppegard	Erik	Project Manager	JOA Surveys LLC	In the data collection phase of any project, off-the-shelf software does not often perform to the needs of a client's reporting requirements. To update and streamline internal workflows, JOA Surveys, LLC (JOA) embarked on the development of an Android application for three wire optical leveling to replace 1980's technology and at the same time meet the requirements of NOAA's Center for Operational Oceanographic Products and Services. A synopsis of the lessons learned in the first-time development of a survey application by JOA as well as a technical session outlining the application's features are to be reviewed with a field collection example outlined.	**Erik Oppegard** is a partner of JOA. Erik graduated from the University of Alaska, Surveying and Mapping Program with a Bachelor of Science in 1997 and has 20 years of professional experience in the field of surveying. In that time, Erik has focused on tide/water level measurement and geodetic GPS topics, participating on hydrographic, bathymetric lidar or shoreline mapping projects as well as completing several large-scale GPS network surveys. He has installed and maintained NOAA National Water Level Observation Network (NWLON) stations in Alaska and has specific expertise in tidal datum computations.	**Ben Gurganious**	30 Minutes	Friday 4:00 - 4:30 (KS/I)
A unique solution to acquiring new aerial imagery for Unalaska Local Government and Land Stewards	Price	James	GIS Administrator	City of Unalaska	In 2017 the City of Unalaska, and our GIS data sharing partner, Ounalashka Corporation (OC) entered into an agreement to procure new aerial imagery for the City and OC to use jointly. With the rapid advance of drone technology, local vendor Aleutian Aerial was contracted to provide 4 inch resolution aerials for the built-area of the City, and surrounding areas. There was also a need for a much larger image set, covering 250 sq miles, in the surrounding area for OC, the primary land owner and steward. Recent 0.5 meter (approx. 18 inch) resolution imagery from Digital Globe covered was procured from Apollo Mapping, an imagery re-seller in Denver, CO. Using ArcGIS software, the imagery will be mosaicked and served to all City and OC departments, via ESRI ArcSDE/Server technology.	**James A Price** has over 30 years as a GIS professional. His education included the University of Louisville as an undergrad, and grad school at Texas A&M. Work experience has included several stints with DOD jobs, including US Navy Oceanography, and overseas for the US Army and Air Forces in Korea and Japan. In the US, various state and local government jobs, and private sector contracts, including Shell Oil & Gas. Currently Mr. Price is serving as the first GIS Administrator for the City of Unalaska, AK.		30 Minutes	Wednesday 11:30 - 12:00 (KS/I)
Identifying the Ordinary High Water Mark	Raynes	Brian	Coastal & Riparian Boundary Unit Supervisor	Alaska Department of Natural Resources	This presentation will discuss the evidence to be examined in the field for identifying the Ordinary High Water (OHW) mark, recognized as the legal ownership boundary along properties bounded by non-tidal lakes, rivers and streams. It will start with a description of typical, basic river and lake structures. Then, outline the State regulations that have a definition of OHW and how these definitions compare with court rulings by both the Alaska Supreme Court and the US Supreme Court. Because Alaska common law and Federal common law concur on OHW, the presentation will discuss the Four Tests of OHW, as outlined by the courts, and how they can be applied in the field. The presentation will then transition to a small group exercise, using photos of various river and lake beds collected by the presenter in Alaska, with each group applying the principles to identify OHW. It will finish with a discussion of the conclusions reached by each group, with follow-up questions as time permits.	**Brian Raynes** is an Alaska Professional Land Surveyor, Certified Federal Surveyor with more than 25 years of surveying experience. For the past 15 of his 19 years with the Alaska Department of Natural Resources, Division of Mining, Land & Water, Survey Section, Brian has served as the Riparian boundary specialist and currently supervises the Coastal and Riparian Boundary Unit. He is the DNR expert on water boundary issues, and has investigated, both in the office and the field, and served as an expert witness in numerous controversies created or resolved by the location of the Ordinary High Water mark.		90-minutes	Friday 1:30 - 3:00 (KS/I)
Using Digital Roadway Data to Inform Road Maintenance in Alaska	Robson	Michael	Roadware Business Development Manager	Fugro	In 2017, the Alaska Department of Transportation & Public Facilities awarded Fugro the initial phase of a potential multi-year contract to collect, process, and deliver a wide range of digital roadway data for public roads across Alaska. The pilot for this program kicked off in Anchorage this past September and involved acquisition of geo-referenced pavement condition data, including pavement profiles, 3D images of the pavement surface, and right-of-way (ROW) images. This presentation will provide an overview of the pilot project planning, execution, and deliverables, with an emphasis on the technologies employed and lessons learned that will benefit subsequent task orders during the life of the contract. The presentation will also address how these data will feed into the Department's existing business systems to foster informed decision-making and support state and federally mandated transportation programs, such as the Highway Performance Monitoring System.	**Michael Robson** is the business development manager for Fugro's roadware group. He has over 38 years of experience in the evaluation, analysis, and management of pavements and assets. During his career, Mr. Robson has served as the project manager or technical expert for hundreds of pavement and asset management implementations. These projects have included the analysis of data using automated data collection systems; the development of pavement performance models; the establishment of maintenance and rehabilitation treatments; and budget analysis. **Rada Khadjinova** is the general manager of Fugro's Alaska office. She is responsible for expert project delivery and is the focal point for all Fugro activities in the state, coordinating with client organizations, teaming partners, and stakeholders to deliver a complete range of survey, geotechnical, and geoconsulting services. She has 23 years of project management experience and has led major programs involving data acquisition, environmental permitting, and engineering design services for capital and field managed constructions in Alaska.	**Rada Khadjinova** (Fugro)	30-minutes	Wednesday 4:30 - 5:00 (K)

Presentation Title:	Last Name	First Name	Job Title	Company / Organization	Abstract:	Bios	List Co-Presenters:	Notes	Day/Time
A public-private solution partnering to solve the difficulty of collecting datum referenced storm surge water level data in coastal Alaskan communities.	Roder	Jonathon	Surveyor	JOA Surveys LLC	The lack of infrastructure and extreme conditions makes permeant water level stations few and far between in western and northern Alaska. These regions of Alaska, primarily western, are subject to storm surge inundation. The lack of water level data in these regions poses a significant challenge for the State to provide coastal hazard warnings for the communities. Seeing the need to fill this data gap JOA Surveys, LLC (JOA) developed a simple and cost-effective system to measure storm surge in low lying communities with tidal benchmarks. The system was designed so that prior to the storm season it could be mailed to a community, installed by a local contact and the observations are referenced to the local tidal datum with no additional surveying. JOA first tested the system in 2016 near Kipnuk, Alaska. A sensor was co-deployed with two high accuracy NOAA approved gauges and captured a storm surge event accurate to 1 cm. In fall 2017, JOA was contracted by the Alaska State Department of Geologic and Geophysical Surveys (DGGS) to deploy systems in Nunum Iqua and Hooper Bay. The systems were installed in October of 2017 and will be removed by local contacts in December or January. If successful this method will provide a simple cost-effective method for rapid response storm surge monitoring with critical need.	**Jon Roder** is an employee at JOA Surveys LLC in Anchorage, Alaska. Jon has five years of experience surveying water levels, computing tidal datums, performing vertical control surveys, and managing projects. He graduated from the UAA Geomatics program in 2012 and has been surveying ever since leaving his past life serving in the fire service with the BLM, USFS, and State of Alaska.	**Erik Oppegard** (JOA Surveys) / **Jaci Overbeck** (DGGS) Jaci is co-author)	30 Minutes	Thursday 4:30 - 5:00 (K)
Harmonizing Environmental and Defense needs at Wake Island Using GIS	Rosenbalm	Dan	GeoBase System Administrator	JBER - 611 CES/CENME	Our team used NOAA bathymetric data and spatial analyst tools to calculate standoff zones around Wake Island. These zones will help protect the coral around Wake Island, while still allowing the Air Force to fulfill its mission.	**Dan Rosenbalm** has more than twenty years of experience implementing geographic information systems (GIS) for local governments and defense organizations. He has worked on systems throughout the world, including Asia, Europe, Micronesia, the Lower 48, and Alaska. Although technology has improved significantly over the last twenty years, he's still working to record where everything is.		30 Minutes	Friday 3:30 - 4:00 (K)
Estimating Dredging Material Volume for Wake Island & Estimating Landfill Capacity on Shemya Island using GIS	Rosenbalm	Dan	GeoBase System Administrator	JBER - 611 CES/CENME	Our team imported GPS survey data and NOAA bathymetric data into ArcMap, created a surface, and used spatial analyst tools to calculate dredging material volume for Wake Island's harbor channel & calculate the remaining capacity of Shemya Island's landfill.	**Dan Rosenbalm** has more than twenty years of experience implementing geographic information systems (GIS) for local governments and defense organizations. He has worked on systems throughout the world, including Asia, Europe, Micronesia, the Lower 48, and Alaska. Although technology has improved significantly over the last twenty years, he's still working to record where everything is.		30 Minutes	Thursday 4:00 - 4:30 (KS/I)
Insights for ArcGIS	Sharrard	John	Solution Engineer	ESRI	Insights for ArcGIS is a web-based, data analytics workbench where you can explore spatial and non-spatial data. Answer questions you didn't know to ask. And, quickly deliver powerful results. Use maps, charts, and tables to visualize and tell your story like never before. Advanced algorithmic spatial analysis is as simple as drag-and-drop. Created the perfect process to analyze a dataset? Insights intelligently records your analysis workflow so you and others can run it again to solve other problems. Easily share your analysis so others can iterate further, or use it to make better decisions.	**John Sharrard** is a Solution Engineer with Esri and currently works in the Northwest with Esri's Local Government customers. John Graduated from Oregon State University with a degree in Geography. John has been with Esri for twenty-three years. Prior to joining Esri, he was a Senior GIS Analyst for the State of Oregon for seven years.		45 Minutes	Thursday 10:30 - 11:15 (KS/I)
The Trail to National Data Harmony	Southwould	Angie	GIS-Database Designer and Programmer	National Park Service	The National Park Service has recognized recent success towards establishing national datasets. Angie Southwould, Technical Lead from the Alaska Region GIS Team, will outline this ongoing journey of bringing together disparate data from park units spread across seven regions around the nation into a single consolidated data stack for thematic geospatial data layers such as Trails, Roads, Buildings, and Points of Interest. This accomplishment stems from committed efforts in the areas of data standardization, data stewardship, data aggregation, and data dissemination and considers best practices that reflect the multitude of data management scenarios that exist across NPS. Join Angie and learn about this enterprise effort, the lessons learned along the way, and how others might scale these strategies to benefit their own organizations.	**Angie Southwould** earned a BS in Applied Science from Miami University with minors in Systems Analysis, Operations Research, and Mathematics. She spent her first several years out of college in the warehousing business, writing applications using radio-frequency identification (RFID) technology to manage inventories for everything from orange juice to peanuts to toilets. She became involved with GIS after moving to Alaska in 1994 and starting work as a software developer for a local consulting company. She joined the National Park Service Alaska Region GIS Team in 2001 and has since further developed her expertise in programming and GIS while specializing in data modeling/database design (spatial and non-spatial), data standards development and implementation, and data management and workflow automation. She serves as a mentor and leader in both the regional and national GIS community of NPS.		45 Minutes	Friday 11:15 - 12:00 (KS/I)

Presentation Title:	Last Name	First Name	Job Title	Company / Organization	Abstract:	Bios	List Co-Presenters:	Notes	Day/Time
From Alaska to Maine: Overcoming Challenges for Hydrographic Surveying Success	Ventura	Don	Hydrographic Business Development Manager	Fugro	After more than a decade of work updating nautical charts in remote locations of Alaska using both airborne bathymetric lidar and vessel-based multibeam echosounder techniques, NOAA tasked Fugro to work in the highly congested waters of Penobscot Bay, Maine. On the surface, it may seem these two locations have little in common aside from woefully out of date bathymetry. In reality, however, it was Fugro's experience in Alaska that enabled the company's successful operations in Maine. Referred to as the "lobster capital of the world," Penobscot Bay boasts a notoriously rugged coastline, dynamic tides, and a high density of commercial activity during the survey season. From mobilization considerations to stakeholder engagement to technologies used, this presentation will describe how lessons learned in Alaska informed a multi-sensor approach in Maine, incorporating acoustic, optical, and remote sensing technologies to update the busy region's 100+ year old charting data.	**Don Ventura** is a Charge IHO Category-A Surveyor with Fugro and has been engaged in hydrography for over 30 years. His experience includes 22 years of service as a hydrographic surveyor in the British Royal Navy, 3 years' exchange with the US Navy at NAVOCEANO, 3 years employed with SAIC and 11 years with Fugro.		30 minutes	Thursday 3:30 - 4:00 (K)
Investigating the use of GNSS Derived Water Levels for CO-OPS Tiered Data Policy	Wardwell	Nathan	Managing Partner	JOA Surveys, LLC	As part of a hydrographic survey to update the nautical charts for Unga Strait JOA Surveys, LLC and TerraSond Ltd established a water level station in Zachary Bay on the north side of Unga Island. The station consisted of a non-vented pressure sensor and a GNSS Buoy. The primary purpose of the station was for tidal model validation. The secondary purpose was to evaluate the GNSS Buoy as an approach for meeting the accuracy and vertical control criteria of Tier A and Tier B data as defined in the Center for Operational Oceanographic Products and Services' external data policy.	**Nathan Wardwell** is the Managing Partner and an owner of JOA Surveys LLC. Nathan grew up in Anchorage Alaska. After completing a BS in Earth Sciences at Alaska Pacific University he moved to New Hampshire and got his MS in Earth Sciences with a focus in Ocean Mapping. Upon completion of his MS he returned to Anchorage as an owner of JOA Surveys.	**Andy Orthmann**, Terra Sond LTD.	30 Minutes	Wednesday 11:30 - 12:00 (K)
Interactive GIS in the Courtroom	Weber	Rockford	Natural Resources Specialist	Alaska Department of Natural Resources	Learn about the benefits and process of using interactive GIS exhibits during depositions and trial testimony. Static maps can be wonderfully meaningful tools but often leave questions because layers are left off the map, there is an inability to meaningful compare layers, data cannot be "zoomed into" in real time, or context between layers is lost. These shortcomings can lead to a failure to gain relevant testimony from a witness or properly convey spatial information to the court. The flexibility of a well built interactive GIS exhibit alleviates many of these problems. Successfully building and implementing such an exhibit requires careful planning, creating an intuitive structure to the exhibit, and working closely with your lawyer. The interactive GIS exhibit being shared in this presentation was used extensively by both parties during a 27-day trail in Alaska State Court and during many depositions prior to trail. The constructor of this exhibit, Rockford Weber, spent 2½ days being deposed, over 14 hours providing testimony at trial, and was declared an expert witness for GIS by the Court.	**Rockford Weber** works for Alaska DNR where he regularly uses GIS and drones to provide meaningful spatial context to land access issues. The vast majority of this work is done for litigation involving RS 2477 Rights-of-Way or Navigable Waters. Outside of work he volunteers his GIS skills to Alaska search & rescue efforts.		60-minutes	Friday 9:00 - 10:00 (K)
Survey to GIS; turning data into useful information	Wittenberg	Jacob	Geospatial Technical Services Advisor	Frontier Precision, Inc.	You're a surveyor and your job is to be accurate. Collecting high accuracy data is imperative to your way of life and each day we are collecting more and more. Managing data can be cumbersome and sharing the data can be difficult with complex disconnected systems. In this session we will discuss how we can easily automate the process of getting accurate data from a survey workflow into GIS; using it as the backbone of your information management. This session will focus on Trimble and Esri solutions for automating and streamlining your workflow using cloud solutions, data migration tools, and GIS tools to share data internally at your organization and with the public, giving you the best of both worlds – Survey and GIS together, at last!	**Jacob** has been with Frontier Precision for 12 years working directly with geospatial technologies such as GPS, (GNSS), GIS, Mobile Imaging/LIDAR and UAS. He is formerly a Trimble Certified trainer educating hundreds of geospatial professionals with mapping and GIS Solutions. He is currently a technical advisor apart of Frontier's GIS Professional Services Team and love's to share his wealth of industry knowledge to get others excited about technology!		1 Hour	Thursday 8:00 - 9:00 (KS/I)
Utility and Asset Collection using Mobile Imaging for GIS Professionals	Wittenberg	Jacob	Geospatial Technical Services Advisor	Frontier Precision, Inc.	Mobile Imaging Instantly collect what you see while driving down the road; it doesn't get any easier than that! In this session we will explore innovative solutions that provide geospatial professionals the opportunity to rapidly capture spatial information and make use of it. Using georeferenced 3D LIDAR and high resolution imagery, professionals have virtually everything in sight at their fingertips to extract information and infrastructure in a matter of seconds. 360 degree images can be referenced for historical site documentation and photogrammetric data extraction. Making sense of what to do with the millions of data points has been a longtime battle, but now with the help of Trimble imaging solutions like the Trimble MX7 and Trimble MX software, Trimble Connect (TerraFlex) and ArcGIS Online, the struggle is over. Come find out more about data capture and data workflows to see the simplicity of these solutions and the ability to easily share collected data across your organization.	**Jacob** has been with Frontier Precision for 12 years working directly with geospatial technologies such as GPS, (GNSS), GIS, Mobile Imaging/LIDAR and UAS. He is formerly a Trimble Certified trainer educating hundreds of geospatial professionals with mapping and GIS Solutions. He is currently a technical advisor apart of Frontier's GIS Professional Services Team and love's to share his wealth of industry knowledge to get others excited about technology!		1 Hour	Wednesday 1:30 - 2:30 (K)

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High Accuracy Data Collection with Smart Phones and Tablets	Wittenberg	Jacob	Geospatial Technical Services Advisor	Frontier Precision, Inc.	Applications like Trimble TerraFlex and Esri Collector for ArcGIS puts maps and data in the hands of anyone with a smartphone, tablet or Windows device. With the introduction of GNSS receivers like the Trimble R1/R2 and Juniper Geode we can now add high accuracy to these workflows and record the estimated accuracy information from these receivers. This session will include information about the tools and technology available to record high accuracy positions with this workflow, and the value of being able to collect metadata. This session will also include information about real-time corrections, reference frames and elevation with these solutions.	**Jacob** has been with Frontier Precision for 12 years working directly with geospatial technologies such as GPS, (GNSS), GIS, Mobile Imaging/LIDAR and UAS. He is formerly a Trimble Certified trainer educating hundreds of geospatial professionals with mapping and GIS Solutions. He is currently a technical advisor apart of Frontier's GIS Professional Services Team and love's to share his wealth of industry knowledge to get others excited about technology!		1 Hour	Friday 8:00 - 9:00 (KS/I)