2017 UW-Madison Geospatial Summit
Wednesday, April 26, 2017
Gordon Event Center
770 W. Dayton St.
UW-Madison

FINAL PROGRAM

www.geoalliance.wisc.edu
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<th>Time</th>
<th>Event</th>
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<tr>
<td>10:00 - 11:00 am</td>
<td>Professional Career Panel Session — Room: Concerto 241B</td>
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<td></td>
<td><em>Marcy Bidney, Kelly Felton, Kim Ness Sundeen, Zihan Song, and Emily Champagne</em></td>
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<td>“Experiences and perspectives as geospatial professionals”</td>
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<tr>
<td>11:00 - 1:00 pm</td>
<td>Networking &amp; Career Fair — Concerto 241B</td>
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<td>1:00 - 1:20 pm</td>
<td><strong>Raquel Charrois</strong></td>
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<td>What you need to know to go “Geo”</td>
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<td>1:25 - 1:45 pm</td>
<td><strong>Josh Camacho, Aaron Schuck, and Shane Dorgan</strong></td>
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<td>Preparing for a career in GIS</td>
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<td>1:50 - 2:10 pm</td>
<td><strong>Ian Muehlenhaus</strong></td>
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<td>Professional programs and the future of GIS education</td>
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<td>2:15 - 2:35 pm</td>
<td><strong>Janet Silbernagel, Annemarie Schneider and Nathan Schulfer</strong></td>
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<td>Professional Masters in Environmental Observation and Informatics</td>
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<td>2:40 - 3:00 pm</td>
<td><strong>Tom McClintock</strong></td>
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<td>What is the UW-Madison LICGF?</td>
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<td>3:00 - 3:30 pm</td>
<td><strong>Break</strong></td>
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<tr>
<td>3:30 – 4:30 pm</td>
<td>Keynote address — Room: Concerto 241B</td>
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<td></td>
<td><em>Marcy Bidney, Curator &amp; Assistant Director, American Geographical Society Library</em></td>
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<td>“Geographic information: The changing landscape of access”</td>
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ABSTRACTS

Roundtable Discussion (10-11am)
A special professional career panel will kick off the event, to discuss experiences and perspectives as geospatial professionals:

Emily Champagne, GIS Supervisor, Milwaukee Metropolitan Sewerage District
Kelly Felton, Sauk County Land Information Officer
Kim Ness Sundeen, GIS Analyst & Developer, RAMTeCH Software Solutions
Zihan Song, UW-Madison Graduate Student
Marcy Bidney, Curator & Assistant Director, American Geographic Society Library

Networking & Career Fair (11am—1pm)
Designed to help students prepare for the working world after graduation. Participants include:

American Family Insurance :: Applied Ecological Services :: Ayres Associates
Continental Mapping :: County Government Representatives :: Esri
Fishing Hot Spots :: HERE :: Mapping Specialists :: RoadView
State Agency Representatives :: TDS Telecommunications

Keynote (3:30-4:30pm)
Marcy Bidney
Curator & Assistant Director, American Geographical Society Library

Geographic information: The changing landscape of access

This session will reflect the evolution of access to geographic information over the last two decades.

Paper Sessions (1-3pm)
(Alphabetically by first author)

Sam Batzli, Russ Dengel, Dave Parker, and Nick Bearson
Space Science & Engineering Center, UW-Madison

RealEarth™: New features and updates

RealEarth™ is a data discovery and visualization platform developed at the Space Science and Engineering Center at the University of Wisconsin-Madison to support outreach and collaboration efforts of in-house scientists. This presentation introduces RealEarth and provides updates for our new features and updates. What began as an effort to bring near real-time weather together with land remote sensing visualization in one intuitive map interface has expanded to offer time-series animation of aerial photography and early warning notifications for hazards and severe weather. The core infrastructure is comprised of 12 servers hosting 18 virtual machines (VMs), but its federated and modular architecture is extensible and scalable. New VMs are added regularly. Now over 450 imagery products are processed and available for display at any given time. It supports a robust API and several mobile apps for both iOS and Android.

TDS Telecommunications Corporation
Finding your way: Preparing for a career in GIS—Josh, Shane, and Aaron are teaming up to cover several topics of particular interest to students

Josh Camacho
Mapping out your career: Transitioning from a student to a professional
As I have transitioned from a student to an intern I will talk about the Challenges of Transition (college to workplace) along with importance of the Ability to keep Learning. The importance and the self-fulfilment of Finding purpose and meaning at work for any job you might have.

Shane Dorgan
Working through the Internship
Being receptive as an intern to use your GIS skills to bring dynamic problem solving ability to areas outside your expected job description. How I approached my work versus how I would approach my work as an intern today. Maximizing an internship by looking at it as continuing education to expand your professional skillset, making yourself more marketable and indispensable.

Aaron Schuck
A graduate and post grad’s perspective on becoming geospatial professionals
The final portion of the talk covers balancing work, family, and school from the perspective of a current UW Masters student and full-time employee.

Highlights include the 3 key traits potential employers are looking for and how to view challenges within the field of GIS.

Raquel Charrois
Continental Mapping Consultants
What you need to know to go “Geo”

A discussion on what skills and talents are highly sought after in the geospatial profession. Some are obvious and some are not. This discussion will highlight what someone entering the profession can expect employers to be on the lookout for.
Scott Farley
Department of Geography, UW-Madison

A public data service for serving climatological data to ecological researchers

Global change researchers increasingly require precise, heterogeneous, and high resolution climatological data to support projects that model potential biotic reorganization due to contemporary climate change. Existing workflows are slow and inefficient, as researchers must identify, obtain, process, and extract climate data for each study site. I introduce an ongoing project to build a web-based data service to provide researchers with efficient, on-demand access to past and future climate data. The system is built on an open technology stack and is currently in beta testing at the University of Wisconsin. In general, the system has the potential to redefine the way in which scientists navigate global climate model metadata and obtain high volume datasets.

Ian Muehlenhaus
Department of Geography, UW-Madison

Disruptive forces: Professional programs and the future of GIS education at UW-Madison

We will discuss trends in professional GIS education at UW-Madison, with an eye on how they will benefit residential programs. Topics will include: the slow decline of residential education, the rise of new teaching technologies in GIS education, and innovative tools for online content delivery.

Robert Reuschlein
Real Economy Institute

How climate change trends impact humans, the economy, and politics.

Temperature studies by industrial engineers have long shown that human performance is reduced at above normal temperatures, reducing productivity on hot days. There are at least three other sets of evidence that show this effect on economics. The major war cycle also comes from economic cycles that come from global warming cycles. Sharp cooling trends of two or three years duration often precede major wars, and volcanoes can trigger this process. This talk will explore explanations of these various linkages with temperature and climate change.

Jim Giglierano
Wisconsin Department of Administration

Opportunities in remote sensing 2017

In this talk I will outline several ideas for collaboration between the UW system geospatial community and government partners on various remote sensing topics. Wisconsin has been collecting and using lidar data for almost 15 years, but now is finally closing in on complete coverage of the state using a combination of the local and federal funding. Several terabytes of new data is being produced including high resolution Geiger Mode lidar for Racine and Kenosha counties, and several normal resolution counties around the state (including Dane). Oneida county has full waveform lidar. The National Park Service and Wisconsin DNR have projects looking at deriving wetland and forestry products from lidar. NOAA has a number of interesting big data projects in Wisconsin, including the National Marine Sanctuary in Lake Michigan, hi-res Coastal Land Cover Program, the National Water Model and the Digital Coast. Traditional Landsat satellite remote sensing data is being augmented with Europe’s Sentinel program, and a number of new commercial ventures. Besides the need for development and validation of new analysis tools, ideas for management, distribution and visualization of huge new datasets are also desperately needed.

Jay Riester
Seiler Instrument

What a pairing—ArcGIS Collector and high accuracy GPS receivers

Overview of Esri Collector software with ArcGIS Online, data collectors, GNSS receivers, accuracy, metadata and correction sources available. The real-life lessons and things to prepare for if your program is looking to implement this technology from a customer story.

Tom McClintock
Land Information & Computer Graphics Facility, UW-Madison

What is the UW-Madison LICGF

The UW-Madison LICGF (Land Information and Computer Graphics Facility) is a center on campus devoted to geospatial research, outreach, education and consulting for over 30 years. Find out what projects we are currently working on, what GIS classes we offer and what GIS resources are available to the University community and other public or private organizations.

Codie See, Chris Scheele, David Mladenoff and Howard Veregin
State Cartographer’s Office and Forest Landscape Ecology Lab, UW-Madison

Engaging with historical geospatial data to address coastal management issues in Wisconsin

UW-Madison’s Forest Landscape Ecology Lab and State Cartographer’s Office have recently been awarded a grant from the Wisconsin Coastal Management Program to develop a historic coastal geospatial database and portal focusing on the Wisconsin Land Economic Inventory (WLEI). The WLEI, also known as the Bordner Survey, was a comprehensive mapping program of most Wisconsin counties in the 1930s. The survey mapped over 100 classes of information at every quarter-mile, including forest type, agricultural use, wetlands, and a host of natural and cultural feature.

The project has two main goals. The first is to complete digitization of the Bordner maps for Wisconsin’s coastal counties to create a true GIS database. The second goal of the project is to develop a coastal geoportal to facilitate distribution and use of the digitized data. The portal will provide discovery and retrieval of data, and will support visualization and mapping to accommodate the needs of a broad set of
users. The project involves outreach to the coastal planning and management community in the state to help identify and prioritize options for map composition and display.

Janet Silbernagel, Annemarie Schneider and Nathan Schuler
Nelson Institute, UW-Madison
Pushing the limits of remote sensing and big data: A new professional master's in Environmental Observation and Informatics launching at UW-Madison in 2018

We are designing a program option in Environmental Observation and Informatics built on the foundation of UW's long respected Environmental Monitoring program, modernized to 21st century professional training that integrates cross-cutting earth observation sensors, technologies, and big data analytics in an accelerated and blended professional master's program model. Environmental Monitoring, led by the Nelson Institute, offered MS and PhD degrees from 1977-2010, and emphasized remote sensing and land cover change. Environmental Observation and Informatics leaps forward, transforming students' technical expertise into integrative synthesis and leadership in cross-cutting environmental observation and interpretation to strategically advance organizational response to global environmental change.

ask specific questions about strategies for starting their own online programs.

Bradley Vowels
Department of Urban and Regional Planning, UW-Madison
Assessing groundwater contamination risks associated with unsewered, rural residential development in southeastern Wisconsin

Human settlement patterns are significantly influenced by public policies, environmental management technologies, and other locational factors. In the United States, advances in wastewater treatment technologies have played a major role in transforming rural landscapes by reducing the influence of environmental constraints on exurban development. Among the drivers of rural residential development has been the development and improvement of on-site wastewater treatment systems (OWTS), which are designed to collect, treat, and release wastewater in close proximity to where the wastewater is generated. Advances in OWTS technology have facilitated residential construction on sites on which soil conditions previously restricted development. Yet recent research suggests that these systems may not always be reliable in filtering effluent, thus increasing the risk of failure as the system ages. Failing OWTS present environmental and public health risks by contaminating ground water, surface water, and privately owned wells. These risks are most significant among OWTS that are near the end of their expected life spans, were not properly maintained, were installed when regulations were less stringent, or are located in densities that surpass the soil’s ability to safely treat wastewater effluent. In this presentation, we examine major OWTS policy changes for the state of Wisconsin and characterize rural development patterns in one county over the past six decades. We used a geographic information system (GIS) to spatially analyze the distribution of OWTS in southeastern Wisconsin’s Ozaukee County. We analyzed land development patterns of unsewered residential development, groundwater contamination vulnerability, and the type and age of OWTS installed. Our study reveals that current policies are allowing OWTS to be installed at densities which threaten water quality. These policies also do not adequately address the challenges of aging OWTS infrastructure. The results of this research are currently being considered for publication in Landscape and Urban Planning.

Ryan Weichelt
UW-Eau Claire
Who owns the Northwoods of Wisconsin? Using parcels to analyze Wisconsin's "pleasure periphery"

The economic evolution of northern Wisconsin from an extraction frontier into a post-WW II tourist haven is well-documented (Bawden 1997; Kates 2001; Shapiro 2013), and geographers have long been interested in the economic linkages that exist between tourist sending areas and tourist destination areas of northern Minnesota, Wisconsin, and Michigan. This project involves the analysis of land parcel ownership in the Northwoods region of Wisconsin. Using a publicly-available database, 800,000 parcels will be mapped and analyzed with a GIS to assess the economic and cultural impacts of local and non-resident ownership in Wisconsin's "pleasure periphery".

Ben Yahr
Resolution Studio, Friends of Lake Wingra
Intermediate sUAS (Drone) Technology

Small unmanned aerial systems (sUAS- drones) continue to grow more prevalent in the media and offer amazing opportunities for design and geospatial professionals. This presentation will review potential project deliverables for designers and clients, and explain basic workflows and project examples for creating orthophotos and digital elevation models for use by geospatial professionals. The presentation will also review current FAA regulations and outline the process and study areas for the Part 107 Aeronautical Knowledge test to receive a Remote Pilot Certification for commercial operations.

Ben Zietlow
CFIRE, UW-Madison
Mapping industrial concentration and specialization levels

As part of a multi-university research project regarding resourcing and its impact on the United States' transportation infrastructure and economy, researchers utilized public and private employment datasets to map locations of industrial concentration (employment levels) and specialization (location quotients) at the county level.
The organizers would like to acknowledge financial contributions from the Nelson Institute and from the UW-Madison Geography Department’s Cartography Lab and GIS Certificate Program.