2017 NYGeoCon Poster Abstracts
Listed alphabetically by poster title and shown as submitted by author.

Poster Title: *Coupling Lithic Sources with GIS Analysis to Model PaleoIndian Pathways*
Poster Author: Susan Winchell-Sweeney; New York State Museum

Abstract:
One of the remarkable features of Paleoindian lifeways in the late Pleistocene Northeast was their extensive seasonal travel, as suggested by distances between proposed geologic sources of toolstone and sites where artifacts of those raw materials have been found. If Paleoindian sites can be linked to a toolstone source through geological analysis, regional terrain analysis using GIS (Geographic Information Systems) can then yield insights on Paleoindian seasonal movements after toolstone acquisition. In eastern New York, Paleoindian peoples mined Normanskill chert for toolstone at outcrops in the Hudson Valley. Here, we combine (1) X-ray fluorescence (XRF) sourcing results that tentatively link Normanskill chert artifacts at Paleoindian sites to the West Athens Hill outcrop and (2) least cost path (LCP) analysis to model some seasonal pathways of Paleoindian peoples in the Northeast. The sourcing results confirm the presence of Normanskill chert in most of the assemblages analyzed, highlighting its importance as one preferred toolstone for northeastern Paleoindians. And, by revealing possible pathways that these Paleoindian peoples may have used, the GIS analysis may provide a more realistic perspective on how these early peoples traversed the Ice Age landscapes of New York.

Poster Title: *Effects of Sea Level Rise on Westchester County Assets*
Poster Author: Anjali Sauthoff; Westchester County GIS

Abstract:
New York State recently enacted the Community Risk and Resiliency Act, which focuses on the effects of sea level rise, storm surge and flooding on vulnerable areas. Analyzing the potential impacts of sea level rise in coastal regions has typically required use of complex computer models. The development of web-based mapping technologies allows for non-modelers to evaluate sea level rise impacts at a regional scale, providing a powerful tool that augments analysis and communication.
Web-based GIS tools can aid in the evaluation of economic and social impacts under different future sea level rise scenarios, help to analyze potential impacts on natural resources and critical infrastructure, and visually support communication of uncertainty.
This presentation will describe how web-based GIS technology was used by Westchester County GIS to evaluate the impacts of future sea level rise on Westchester County-owned assets. The analysis revealed and helped to communicate broad impacts across sectors, including real estate and development, municipal planning, policy and public health.

Poster Title: *GIS Course Modules for Introductory Science and Social Science Courses*
Poster Author: Mary Perrelli; SUNY Buffalo State

Abstract:
Spatial thinking focuses on questions that begin with "where" then expand into explorations for patterns or questions about proximity. Results typically are mapped to visualize phenomena of interest. These types of inquiries are not unique to Geography. Geographic Information Systems (GIS) software is to spatial thinking what word processors are to written communication. Web-based GIS course modules developed at SUNY Buffalo State facilitate the adoption of GIS, GPS and Remote Sensing technology and techniques into non-GIS/Geography courses. Modules are designed to cover a lecture topic or as a homework assignment relevant to the course material. GIS modules are customized to fit course syllabi and student learning outcomes. The goal of these modules is to introduce students to GIS technology and the benefits of the technology to their discipline. Students learn how to think spatially, ask spatially related questions, and look for answers with a spatial component. Introducing students to GIS technology at an early point in their higher education gives them time to learn the software and provides them with skills required to be competitive in the job market. This presentation highlights some of the GIS modules created to date.

Poster Title: *High Precision Mapping at Alcove Sites: Close-Range Photogrammetry at Keet Seel, Navajo National Monument*
Poster Author: Anna Breton; St Lawrence University

Abstract:
Keet Seel is an ancient Anasazi cliff dwelling located at Navajo National Monument in northern Arizona. Although there have been survey documentations and maps created for Keet Seel, the alcove site has not had a detailed georeferenced map manageable with a GIS until now. Since the site is at the base of an 800' sandstone wall, typical GPS mapping technologies can't be used to create georeferenced maps for the site. Last year the monument contracted vendors to collect Lidar data of the site. This gave the park access to geodatabases of site walls, rooms, and other major features. Using this Lidar data, park archaeologists were able to place targets tied to coordinates and then create close range photogrammetry orthomosaics. The orthomosaics were then used to create the first highly detailed, georeferenced alcove site map of Keet Seel.

Poster Title: *Impacts of Exurban Housing Development on Forested Land Cover of the Southern Appalachians*
Poster Author: Christopher Badurek, PhD, GISP; SUNY Cortland

Abstract:
What impacts do large housing developments have on forested areas in the Southern Appalachian Mountains? It is known that housing development may disrupt an array of ecosystem services such as habitat fragmentation, transition to impervious surface which affects water quality, loss of water vapor from evapotranspiration, and loss of carbon storage in biomass. This research reports on work aimed at integrating mathematical and GIS models of housing development with analysis of loss in forested areas across Southern Appalachian counties as well as finer scale analysis within mountain areas of North Carolina.

Poster Title: *Nature Up North, a community-based environmental education program for Northern New York: implementing geospatial technology to increase place-based learning*
Poster Author: Maya Williams; St. Lawrence University

Abstract:
Recognizing that technology can be a barrier between people and the natural world, Nature Up North (NUN), a non-profit organization, has been introducing new ways for citizens to engage with the outdoors. Incorporating geospatial technology into environmental education efforts is a tool to encourage outdoor experiences and place-based learning. The NUN website features a platform for people to share their own outdoor experiences, contributing to a community of learning. People can post "encounters" in nature, with pictures and descriptions, and view the encounter map to browse where others have been. Incorporating geospatial technology through a trail archive allows people to access outdoor experiences. Individuals can download maps and directions from the NUN website to provide them with an easily accessible avenue to get outside independently and confidently. NUN also involves local communities in scientific data collection through citizen science projects, the most recent is mapping ash trees in St. Lawrence County. Using the ArcGIS Collector application on tablets, school and scout groups are taking data on ash trees to manage the risk and track the incoming infestation of invasive Emerald Ash Borer. Access to geospatial technology allows people to discover and connect to new and old places. With education rooted in these local places, the North Country community can gain a greater appreciation for and knowledge of the regional environment.

Poster Title: *Recreating Historic Views: A Reconstruction of Gettysburg Using 3D Models*
Poster Author: Cody Doane; Suny Cortland

Abstract:
Using the second day of Gettysburg as an example, the poster present an example of how views look to people on the ground from this point in history. It will address how to recreate data from a range of historical documents and allowing for the recreation of different historical vantage points.

Poster Title: *The Use of GPS in Coordination with 3-D Photogrammetric Software to Assist in the Recording and Analysis of the St. Lawrence County Poorhouse Cemetery, Canton, NY.*
Poster Author: Carol Cady; St. Lawrence University

Abstract:
In June of 2017 the Death in St. Lawrence County Project began an archeological excavation at St. Lawrence County Poorhouse Cemetery in Canton, New York. As a result of decades of erosion, the cemetery had a number of graves at risk of washing away into the Grasse River. The goal of the project was to exhume the at-risk graves, identify the individuals using forensic techniques in combination with historical documents, and re-inter the remains elsewhere on the property. Using digital images, Agisoft PhotoScan was used in combination with high resolution GPS data to create 3-D models of archeologically significant objects, features, and stratigraphy. Once georeferenced using GPS coordinates, these models became spatially accurate three-dimensional representations of the site that can be fully manipulated using GIS to map and visualize archeological features including grave cuts, skeletal remains, and artifacts. Such photogrammetric techniques provided a way to record and preserve the archeology of the St. Lawrence County Poorhouse Cemetery at various stages of excavation with high photorealistic accuracy, and replaced the need for manual archeological recording methods.

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Poster Title: *The Use of GIS to Manage and Promote Green Infrastructure: A Facilities Management and Campus Planning Perspective*
Poster Author: Jessie Pellerin; Office of Campus Planning, University at Albany

Abstract:
The University at Albany is a non-traditional Municipal Separate Storm Sewer System (MS4) and administers the requirements of the NYSDES SPEDES General Permit for Construction Activity. UAlbany's Stormwater Management Policy demonstrates the University's commitment to sustainable stormwater management and encourages the use of green infrastructure practices, including green roofs, porous material surfaces and rain gardens.

In the Office of Facilities Management, GIS has become a critical tool for mapping, managing and promoting the use of these green infrastructure practices for stormwater management throughout the campus. The GIS data and maps are used for everything from day-to-day maintenance for facilities management, as well as used in interpretive signage and web mapping applications that promote green infrastructure practices to the surrounding community.

The poster presentation proposed for NYGeo Can 2017, will illustrate the uses of green infrastructure on the uptown campus of the University at Albany and demonstrate how GIS has been an integral part of the Stormwater Management and Campus Planning process.

Poster Title: *Using ArcGIS mobile apps for data collection: successes and challenges*
Poster Author: Neil Curri; Vassar College

Abstract:
ArcGIS mobile apps (Collector, Survey 123) have been used for a various field data collection projects at Vassar College, including an inventory of the college's arboretum tree collection, inspecting and monitoring stormwater infrastructure, managing horticultural planting beds, and collecting bird observations at the Vassar Farm & Ecological Preserve. ESRI's ArcGIS Online platform and integrated mobile apps enables us to configure them for field collection missions and create maps with the collected data relatively quickly, but the software and hardware sometimes impose limitations on what would be an ideal workflow and/or representation of the data. This poster outlines the successes and challenges imposed by those limitations, and how we worked through them.

Poster Title: *Worldwide Kindness*
Poster Author: Mickey Dietrich; NYS Tug Hill Commission

Abstract:
This poster will highlight how GIS is being utilized to help track acts of kindness and Dance For Kindness events worldwide. Hopefully it will help to inspire other GIS professionals to help champion GIS in places that they may not have thought about GIS playing a significant role.