Letter from the Director

The Geospatial Analysis Center is very active! This year, we have had the pleasure of working with faculty and staff in all 5 colleges in addition to Facilities Management, Student Life, the College of Pharmacy Duluth and the University of Minnesota Medical School, Duluth Campus.

In this past academic year, our revenues included over $54,000 in internal summer faculty research and services, $65,000 of external agreements, and over $400,000 in new sponsored project awards. Some of these projects are highlighted here, but the numerous small projects are also rewarding, especially when an introduction introduces a whole new audience to the power of GIS!

Zach Vavra has joined us as a GIS Specialist. Zach has jumped right into our diverse mix of activities. You may encounter him as a workshop instructor or managing the workload of our hazard mitigation plans. Our workshops have been very popular. In the 2017-18 academic year, 48 faculty and staff took advantage of 10 workshop offerings. He also visited 10 different classrooms to facilitate GIS-based assignments or labs.

We are looking forward to extending our contributions to the student experience and research at UMD through our relationships with the departments and clients with whom we serve and collaborate.

Kind regards,

Stacy Stark
MS, GISP, Director
GAC Staff

GAC Support at UMD

GIS & Story Mapping Workshops
GAC regularly hosts workshops aimed at introducing UMD Staff and faculty in GIS and Story Mapping. Attendees have come from fields as diverse as chemical engineering, mathematics, anthropol- ogy, writing studies, geology, marketing, facilities management, psychology, philosophy, statistics, social work and foreign literature.

UMD Campus Mapping
GAC designs and manages public-facing UMD campus maps. This year our work with Student Life was especially rewarding as we combined interactive maps and surveys for capturing student input about their campus experience. We have also introduced ArcGIS Online to UMD campus support units to use in their daily work.

Interactive Web Mapping in Multi-Disciplinary Classes across Campus
Through partnerships, students with no prior cartographic experience create maps and stories that are both descriptive and qualitative data, and learn about real-world examples of how GIS and web mapping are utilized by professionals in their field. In 2017-18, we visited 10 different non-geography classrooms to facilitate GIS based assignments or labs.

Hazard Mitigation Planning
In collaboration with Handriever Consulting LLC, MN Counties, and the State of MN, the Geospatial Analysis Center serves as a primary contractor to the State of Minnesota, facilitating county and tribal Multi-Hazard Mitigation Plans across the state. Our expertise in using FEMA Hazus-MH application is also required for County and the State Multi-Hazard Mitigation Plans to identify potential economic loss to communities in a 100-year or 1% probability flood.

GAC is currently updating Multi-Hazard Mitigation Plans for eight counties in Minnesota and the 2019 Minnesota State Hazard Mitigation Plan. These plans are required to maintain eligibility for certain federal disaster assistance and hazard mitigation funding programs. Update efforts include conducting research to develop text and maps which describe the county’s community profile, land use, disaster history, hazard analysis and risk assessment.

Indoor Campus Maps
In collaboration with UMD Student Life
GAC produced a collection of maps for the University of Minnesota Duluth campus, which are accessible through a mobile application, the BulldogMobile App (available through Google Play or the Apple App Store). Student GIS technicians at GAC collaborated to create individual maps for every building and floor on campus. The app allows for a comprehensive campus directory to be accessed at any time via a smartphone, and will allow users to quickly locate rooms of interest.

Student Life Survey App
In collaboration with UMD Student Life
GAC worked with UMD Student Life to develop a web app to survey how students feel about the UMD campus. Through a simple web-based interface, students are able to confidentially identify areas on campus where they feel it’s doing certain activities such as studying and hanging out, or where they may feel unwelcome. The data collected using this web app will be used directly by UMD Student Life to steer campus design and programming in the future.

Utilizing Geospatial Analysis to Identify Opportunities to Reduce Opioid Overdose
In collaboration with Dr. David Syring, College of Liberal Arts, UMD During the spring semester of 2018, GAC collaborated with Dr. Da- vid Syring’s anthropology class, Digital and Participatory Research Methods, to create a map of opioid fear and feeling in the Twin Ports. This project aimed to explore the human experience in the local landscape, as students used Esri’s Collector App to collect ethno- graphic data in the field. The resulting output was a story map rich with stories, images and multimedia content documenting personal experiences and emotions within the region.

Solar Energy Potential Application Update
In collaboration with Energy3 and the City of Duluth
In 2016, GAC worked with Energy3 to develop the Duluth Shines! Duluth’s Solar Suitability Application. This online tool uses building footprints to represent the area of rooftops to demonstrate the solar resource that exists within the City of Duluth. A customizable calculator estimates an appropriate solar installation size and cost. In the winter of 2017-18, GAC updated this tool to add diverse solar installation narratives for UMD and other public buildings, and added ground mounted solar potential data layers, resulting in a more comprehensive tool. See version 2 of this online tool here: [www.d.umn.edu/duluthshines](http://www.d.umn.edu/duluthshines).
Recent Activities

- Esri Education Conference, San Diego, CA, July 2018, Presented Growing the GIS Professional and participated on the State Geoinquiries Panel
- Esri User Conference, San Diego, CA, July 2018, Presented Visualizing Hazus Flood Analysis Results with Story Maps
- Workforce & Related Issues Symposium, UMN Minneapolis, MN, May 2018, Poster Presentation: Workforce Services in Northeast Minnesota - Community Asset Mapping and Environmental Scan
- MN GIS/LIS Conference, Bemidji, MN, October 2017, Moderated panel for Finding, Applying for and Interviewing for Jobs in GIS and instructed ArcGIS Online workshop for K-12 teachers

Three student GIS technicians from the GAC, Alex Nelson, Siona Roberts, and Morgan Larson, presented posters at the American Association of Geographers annual conference in New Orleans, April 10-14, 2018. All three students received funding from UMD’s GUESS Department in order to attend and present at this conference.

Outreach

- Geoinquries: GAC is collaborating in a $5,000 grant from Esri and a $2,000 matching grant from the MN GIS/LIS Consortium to create geoinquries, which are short, pre-built activities that allow K-12 teachers to cover required content using a free, online, interactive map. The activities are standards-based and closely follow the map concepts taught in leading U.S. textbooks. Topics covered in these Minnesota-based geoinquiries include Lake Superior shipwrecks, treaties, agriculture, fur trade, industry and immigration.
- Classroom visits to Ordean East Middle School: In the fall of 2017, GAC collaborated with science teachers at a local middle school to introduce their students to GIS.
- MN GIS/LIS Consortium: Stacey Stark was elected as the Higher Education Representative to the MN GIS/LIS Consortium Executive Board from 2016 through 2017. In this role, she was the annual conference Mentor Program and Scholarship Program coordinator. She also served on the Minnesota K-12 GIS Education Team.
- Presentation about the Geospatial Analysis Center and Mapping the Community: In March 2018, the Geospatial Analysis Center presented current research and community engagement to the University for Seniors at UMD and the Community Duluth Woman’s Club.

Giving

The Geospatial Sciences Student Support Fund is used at the GAC Director’s discretion to support student hourly work on GIS projects requested by not-for-profit regional organizations and other unfunded intra-campus projects.

For more information about the fund, please contact SCSE Development Director Carrie Sutherland at csutherl@d.umn.edu or (218) 726-6984 or www.d.umn.edu/scse/giving

Congratulations!

Congratulations to GAC Student GIS Technician Alex Nelson on winning first place in the student scholarship competition at the 2017 MN GIS/LIS Consortium’s annual conference. He received an $800 scholarship.

Geospatial Analysis Center

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