



## TNGIC Middle Tennessee Fall Regional Forum



### Detailed Agenda

- 8:30-9:00 am- Registration Opens
- 9:00-9:20 am- **TNGIC Welcome**  
*Natalie Robbins & Paul Dudley, TNGIC Board Members*
- 9:20-9:40 am- **Tennessee Hydrography: The pursuit of a new statewide dataset, one pilot at a time**  
*Dennis Pedersen, STS GIS*  
The State GIS Coordination Office (STS-GIS Services) is continuing its goal of developing a new statewide hydrography layer with the US Geological Survey. Current efforts are focused on a HUC 10 pilot project to develop sample data, estimate costs, and develop funding partnerships.
- 9:40-10:00 am- **Evaluating the Addition Red-edge Band from Drone Altum Multispectral Camera for Mapping of Winter Wheat and Associated Weeds' Canopy Cover**  
*Dr. Clement E. Akumu, Tennessee State University*  
The mapping of winter wheat and associated weeds' canopy cover such as chickweed and hairy buttercup is essential for crops and weeds' management. With emerging drone technologies, the use of multispectral camera such as Altum with red-edge band is being used for crops and weeds mapping. However, little is understood about the contribution of the red-edge band for mapping winter wheat and associated weeds' canopy cover. The aim of this study was to examine the addition of red-edge band from drone Altum multispectral camera in improving the mapping of winter wheat, chickweed, and hairy buttercup. The mapping was performed with and without red-edge band using random forest classification algorithm. Results showed that the addition of red-edge band increased the overall mapping accuracy of winter wheat, chickweed, and hairy buttercup by about 7%. This study demonstrated the usefulness of red-edge band for improving the mapping of winter wheat, chickweed, and hairy buttercup.

10:00-10:20 am- **Enhancing Operational Awareness with Radio Locations**

*Kevin Bingham, True North Geographic Technologies*

True North worked with a local city in Middle Tennessee to enhance their operational awareness. The locations of radios are maintained in one business system used by the city. City staff requested a near real-time feed of radio locations to be used in another business system. The radio locations are now being used by city staff to provide operational awareness for emergency and non-emergency personnel.

10:20-10:40 am- **Break**

10:40-11:00 am- **Tennessee Division of Archaeology's HUB Premium Initiative**

*Paige Silcox, Tennessee Division of Archaeology*

The Tennessee Division of Archaeology (TDOA) recently partnered with TDEC's Office of Strategy and Support as well as STS-GIS Services to create their first HUB initiative using HUB Premium. To date, the TDOA has launched a map viewer, which provides external customers with an online tool to conduct archaeological background research, as well as an internal staff page to access site maps and agency specific data. Due to the sensitivity of archaeological site locations, a key value proposition for the TDOA is HUB Premium's ability to control access through secure, password protected logins. The TDOA views HUB as a platform that will facilitate their vision of creating a one-stop-shop application for data and services, as well as program tracking and reporting. Future initiatives include a data and communication portal for stakeholders from federally recognized Native American tribes, public inquiries, and review requests, among others.

11:00-11:20 am- **Grundy County Environmental Justice Project**

*Dr. Stacy Curry-Johnson, Vanderbilt University*

Working with a team of students from the Vanderbilt School of Science Math, research was conducted on the potential environmental impact of industry and farming practices in Grundy County, TN. The end product was to engage the community and provide an ESRI Storymap with preliminary results. The initial research question posed examined whether traditional terrain analysis, site location, and hydrological mapping could identify areas of risk for potential contamination in Grundy County, TN? The goals included, getting students experience with environmental spatial data, geospatial tools, and community engagement. It is important to note that the results of this research are not definitive and have not been field checked. Future work will involve students in local high schools collecting real-time data that can be used to improve the mapping project.

11:20-11:40 am- **Tennessee Vistas: Mapping Scenic Viewsheds**

*Paul Dudley & Kari Williams, STS GIS*

Scenic Tennessee, a non-profit focused on scenic preservation and awareness, recently partnered with the state of Tennessee to map scenic viewsheds around our beautiful state. This presentation will discuss the project goals, the unique partnership, the ArcGIS Hub solution, and how you can participate.

11:40-12:00 pm- **Vendor Spotlights**

12:00-1:00 pm - **Catered Lunch from Demos'** (vegetarian options available)

1:00-1:20 pm - **Dove CubeSat images of a February, 2020 sinkhole flood in Rutherford County, Tennessee**

*Dr. Mark Abolins, Middle Tennessee State University*

Daily 3 m cell size Dove multispectral satellite images were used to estimate the extent and duration of flooding in sinkholes in the ~13 sq. km Shores Road focus area, central Tennessee. Flooding happened after rainfall events on 4-Feb-6-Feb (9.91 cm of precipitation) and 10-Feb-12-Feb (8.08 cm) 2020. The filling and draining of inundated features was observed by visually inspecting color-infrared images for 8 dates. The images show that some features drained more rapidly than others. Also, water levels rose in some features after the second rainfall event, but water levels continued to decline in other features. The average duration of inundation was ~15 days, and all features were dry on 7-Mar. The imagery and method could be widely applied in karst areas within Middle Tennessee and elsewhere.

1:20-1:40 pm- **Open Water - TDEC, Division of Water's GIS Data Hub**

*Brian Ham, TDEC, Division of Water Resources*

The presentation will provide an overview of the Open GIS Data Hub for TDEC's Division of Water Resources. Descriptions for data layers, mapping applications, and story maps will be presented along with the process for migrating to the Hub site to provide better public accessibility for these data to the public and GIS users.

1:40-2:00 pm- **Break**

2:00 -2:20 pm- **From Framework, to the Field, to the Future**

*Andrew McDonagh, Tennessee State Parks*

How TN State Parks used ArcGIS Field Maps to deploy a framework for Park resources and institutional knowledge inventory and management.

2:20-2:40 pm- **TennGreen Land Conservancy and geographic storytelling**

*Jeff Hill, TennGreen Land Conservancy*

Jeff Hill is the GIS & Stewardship Manager at TennGreen Land Conservancy. He uses ArcGIS Storymaps to review the organization's conservation impact over the past fiscal year (10/1/2021 – 9/30/2022). This tool makes TennGreen's conservation work more transparent and accessible to board and committee members. The geographic approach to conservation enables TennGreen to have a bigger impact and include more individuals and communities going forward.

2:40-3:00 pm- Closing Remarks and Door Prizes

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