



TNGIC Virtual Fall Forum 2021 Agenda

November 3-4, 2021 from 8:30-11:30 CT/9:30-12:30 ET

Day 1 – November 3, 2021

8:30-11:30 AM CDT		9:30-12:30 EDT		FALL VIRTUAL FORUM 2021 November 3rd	TNGIC
Time	Time	Topic			Speaker/Presenter
8:30-8:40	9:30-9:40	Zoom Intro/Housekeeping			Michael Camponovo, Outreach Coordinator, UTK
8:40-8:50	9:40-9:50	Presidential Welcome - Door Prize			President Kevin Bingham, True North Geographic
8:50-9:30	9:50-10:30	KEYNOTE: Dr. Dalton Lunga, ORNL Research Scientist(GeoAI), "An Overview of GeoAI Activities at ORNL"			Dr. Dalton Lunga, ORNL
9:30-9:35	10:30-10:35	5 min break			
9:35-9:55	10:35-10:55	STS-GIS Statewide Data Initiatives/Updates			Dennis Pedersen, Director, STS-GIS Services
9:55-10:15	10:55-11:15	2020 Census Data Products: What GIS Professionals Should Know			Tim Kuhn, Director, TN State Data Center
10:15-10:35	11:15-11:35	Callbacks: What are you missing out on?			Jeff Kirchberg, GIS Programmer, City of Maryville
10:35-10:45	11:35-11:45	10min Break with door prizes in last 5min			
10:45-11:05	11:45-12:05	Detecting Erosion Vulnerability in HUC 12 Watersheds			Jonathan Byham, Strategic Account Manager, GPI Geospatial
11:05-11:25	12:05-12:25	Use of GNSS Receivers for Data Collection for Subsurface Utility Engineering (SUE)			Dr. Nikolas Smilovsky, GIS Solutions Director, Bad Elf WGI
11:25-11:30	12:25-12:30	Business/Closing			President Kevin Bingham, True North Geographic
11:30	12:30	END			

Day 2 – November 4, 2021

8:30-11:30 AM CDT		9:30-12:30 EDT		FALL VIRTUAL FORUM 2021 November 4th	TNGIC
Time	Time	Topic			Speaker/Presenter
8:30-8:40	9:30-9:40	Presidential Welcome/Map Gallery			Kevin Bingham/Sunny Fleming
8:40-9:20	9:40-10:20	KEYNOTE: John Nelson, Cartographer, ESRI			John Nelson, Cartographer, ESRI
9:20-9:30	10:20-10:30	10min Break with doorprizes in last 5min			
9:30-9:50	10:30-10:50	First Utility District - An Unexpected GIS Journey			Blaine Hazlerig, GIS Analyst, First UD and Shawn Anderson, GIS Director, Tipton Co
9:50-10:10	10:50-11:10	Survey123...456 and Beyond!—Advanced Techniques to Comply with EPA Lead/Copper Rule			Sarah Sweat, GIS Analyst, LJA Engineering
10:10-10:30	11:10-11:30	Mapping and monitoring of the canopy cover and wetness of southern yellow pines (loblolly)			Adeyinka Adekunle, Graduate Student TN State & Dr. Clement Akumu TN State
10:30-10:40	11:30-11:40	10min Break with door prizes in last 5min			Door prizes!
10:40-11:00	11:40-12:00	Edgefield Benevolent Society 2 Cemetery: GIS Reveals a Nashville Tragedy			Sunny Fleming, TNGIC Board Member
11:00-11:20	12:00-12:20	Interactive mapping and geospatial analysis using the open-source leafmap Python package			Qiusheng Wu, Assistant Professor University of Tennessee, Knoxville
11:20-11:30	12:20-12:30	Business/Close/Door Prizes			
11:30	12:30	END-THANKS FOR ATTENDING!			

Useful Links

- [TNGIC Map Gallery](#)
- [Zoom Backgrounds](#)

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Detailed Agenda

Day 1 - 11/3/2021

Times in Central Time:

8:40-8:50 AM - **Presidential Welcome**, Kevin Bingham, True North Geographic

8:50-9:30 AM – KEYNOTE - **“An Overview of GeoAI Activities at ORNL”**

Dr. Dalton Lunga, Oak Ridge National Lab

9:30-9:35 AM – 5 min break

9:35-9:55 AM - **STS-GIS Statewide Data Initiatives/Updates-**

Dennis Pedersen, Director, STS-GIS Services

Dennis Pedersen will dive into updates on Statewide LiDAR and Imagery Initiatives, what’s next, and

9:55-10:15 AM - **2020 Census Data Products: What GIS Professionals Should Know**

Tim Kuhn, Director, TN State Data Center

The August 12 release of the 2020 Census Redistricting data products was the culmination of years of work preparing to count the residents of the Tennessee and the nation. But for many GIS professionals the data release marks the start of their work to assess the quality of the data, redraw political districts or access a decade of population and housing unit change. In that light, this presentation will help get you up to speed on the 2020 Census release and show some of what the data tell us about the state’s population change. We’ll then show how to access the State Data Centers preprocessed geographic data files, show important quality review steps that should be undertaken by local communities and discuss additional forthcoming data releases.

10:15-10:35 AM - **Callbacks: What are you missing out on?**

Jeff Kirchberg, GIS Programmer, City of Maryville

Come learn how to better use Collector, Field Maps, and Survey123. Callbacks help users move easily between these apps allowing more functional and fluid workflows.

10:35-10:45 AM – 10 min break

10:45-11:05 AM - **Detecting Erosion Vulnerability in HUC 12 Watersheds**

Jonathan Byham, Strategic Account Manager, GPI Geospatial Inc

Agricultural lands can often become susceptible to water erosion, which can lead to soil nutrient export and downstream water quality problems. By analyzing LiDAR digital earth models, soil data, land cover, precipitation data and culvert locations, a

vulnerability index can be created. This index is based on areas that contribute to surface water quality, the Stream Power Index, and the Universal Soil Loss Equation (USLE). This presentation dives into GPI Geospatial's work on identifying vulnerable areas within HUC 12 watersheds with a case study from a recent project, and will give detailed insight on how GPI's team used various ArcGIS processing techniques to deliver our clients their final data.

11:05-11:25 AM - Use of GNSS Receivers for Data Collection for Subsurface Utility Engineering (SUE)

Dr. Nikolas Smilovsky, GIS Solutions Director, Bad Elf WGI

Recent developments in mobile technology present exciting new options for field data collection. One example is in helping public and private utility operators collect accurate locations for water, telecommunications, sewer, and other underground infrastructure. Subsurface utility engineering (SUE) practitioners require an efficient workflow to accurately locate “top of the pipe” to protect assets from accidental ruptures and the disruption of critical public services. Traditionally, achieving the required accuracy would require land survey equipment and trained survey personnel. We’ll demonstrate how to use advancements to deploy a app-based field data collection workflow. We’ll present best practices for pairing a high-accuracy Bad Elf GNSS receiver with Esri’s ArcGIS Field Maps app to simplify field data collection and achieve accurate results. We’ll present the cost savings with this new approach and common deliverables.

11:25-11:30 AM – Closing Remarks Day 1!

Day 2 - 11/4/2021

Times in Central Time:

8:30-8:40 AM – Presidential Welcome and Map Gallery Awards

Kevin Bingham, TNG (TNGIC President) & Sunny Fleming, ESRI (TNGIC Vice President)

8:40-9:20 AM - KEYNOTE: “The Coolest Clingman’s Dome Map Ever”

John Nelson, Cartographer, ESRI

9:20-9:30 AM – 10 min break

9:30-9:50 AM - First Utility District - An Unexpected GIS Journey

Blaine Hazlerig, GIS Analyst, First Utility District and Shawn Anderson, GIS Director, Tipton County

First Utility District has been part of the Tipton County GIS Board since 2001 but not all of it has been a glorious adventure. There have been multiple twists and turns related

to software, data collection and usage. Come share in the story of a rural utility district and how GIS has grown to what it is now today.

9:50-10:10 AM - Survey123...456 and Beyond!—Advanced Techniques to Comply with EPA Lead/Copper Rule

Sarah Sweat, GIS Analyst, LJA Engineering

As of 2021, the EPA has revised the Lead and Copper Rule to better protect children and communities from lead exposure from drinking water. Part of the revision includes having each utility complete a lead service line inventory by 2024. To assist municipalities and field crews in data collection for each service line, a Collector and Survey123 form were developed to create a seamless map to survey experience. Our survey includes features such as pre-populating fields with parcel information from Collector, reverse geocoding addresses, and utilizing the image map appearance to create a form that increases efficiency of data collection for field teams as they assess each customer's service lines.

10:10-10:30 AM - Mapping and monitoring of the canopy cover and wetness of southern yellow pines (loblolly, shortleaf and Virginia) using multi temporal Landsat Satellite Data with DEM and Derived Surface Roughness in Eastern Tennessee

Adeyinka Adekunle, Graduate Student TN State & Dr. Clement Akumu TN State

Southern yellow pine species such as loblolly, shortleaf and Virginia pines contribute significantly to the economy of Tennessee. However, there is limited knowledge of the canopy cover distribution and wetness of these species in Tennessee. This study aims to map and monitor the canopy cover and wetness of loblolly, shortleaf and Virginia pines in the years 2009, 2013 and 2019. Landsat Operational Land Imager (OLI) was integrated with Digital Elevation (DEM) and topographic surface roughness to map and monitor loblolly, shortleaf and Virginia pines. Random Forest classification algorithm was used to map and monitor southern yellow pines. The Normalized Difference Wetness Index (NDWI) was used to monitor the canopy wetness of loblolly, shortleaf and Virginia pines. In total, this study found the canopy cover of southern yellow pines decreased by about 17% from 2009 to 2013 and increased by around 26% between 2013 and 2019.

10:30-10:40 AM – 10 min break

10:40-11:00 AM - Edgefield Benevolent Society 2 Cemetery: GIS Reveals a Nashville Tragedy

Sunny Fleming, ESRI & TNGIC Vice President

A number of publicly-available GIS resources were leveraged to assist in research to identify extant cemeteries with headstones potentially carved by the late sculptor

William Edmondson. One cemetery was proving especially difficult to relocate. With the use of GIS including LiDAR, historic maps and parcel data, the current location - and fate - of the Edgefield Benevolent Society #2 Cemetery was revealed. This presentation will describe the methodologies used in identifying and ground-truthing the current location of the cemetery and some details of the story that was revealed while researching the site.

11:00-11:20 AM - Interactive mapping and geospatial analysis using the open-source leafmap Python package

Qiusheng Wu, Assistant Professor University of Tennessee, Knoxville

Leafmap is a Python package for interactive mapping and geospatial analysis with minimal coding in a Jupyter environment. It is a spin-off project of the geemap Python package, which was designed specifically to work with Google Earth Engine (GEE). However, not everyone in the geospatial community has access to the GEE cloud computing platform. Leafmap is designed to fill this gap for non-GEE users. It is a free and open-source Python package that enables users to analyze and visualize geospatial data with minimal coding in a Jupyter environment. Leafmap is built upon several open-source packages, such as ipyleaflet (for creating interactive maps), WhiteboxTools (for analyzing geospatial data), and ipywidgets (for designing interactive graphical user interface). This presentation will highlight the key features of leafmap and provide useful resources for research and teaching in geospatial data science. More information about leafmap can be found at <https://leafmap.org>.

11:20-11:30 AM - Business/Close/Door Prizes!