



GIS IN FLIGHT- UAV



Location: 1192 US-64 BUS, Pittsboro, NC 27312
Chatham County Agriculture & Conference Center

Date: Friday May 20th, 2022

Time: 10:00am – 4:00pm

10:00am – 10:30am

Matt Nanney *AECOM*

Lessons Learned: UAS Based Remote Sensing for Mobile Data Collection

Implementing a successful UAS mission can have a number of challenges. Setting up data collection parameters for UAS and ensuring the quality of the data captured are the first steps in creating 'Good Data'. High quality of data is necessary to be able to correctly process UAS data into a number of different project deliverables. Considerations to ensure a successful UAS mission start with addressing these and other questions. What data am I collecting? Is it safe and legal to implement UAS? What is the required accuracy of the data? What UAS should I deploy? What payload should I implement? Do I need to set ground control and consult a land surveyor? This lessons learned in UAS will address these and other experiences.

10:30am – 11:00am

Scott Williams *GPI*

Understanding UAV Processing Results

It has never been easier to acquire a drone for mapping applications. Post-processing software options are plentiful and seem to be ever growing. Most software platforms are easy to use and highly automated but still require a learning curve that can be steep when analyzing the quality of the resulting datasets. The goal of this presentation is to demystify the various sections of a typical UAV processing report. It will cover the basics on how to read and interpret key results related to quality and provide real-world scenarios on what to look for.

11:00am – 11:15am

BREAK

11:15am – 11:45am

Neal Banargee *ESP Associates*

Staying Between the Lines: Applications of Mobile Lidar and GIS for Autonomous Vehicles

Autonomous vehicles (AVs) are quickly turning from a pipe-dream to reality. Vehicles that assist with lane control, parking, and collision detection have already becoming commonplace and more fully AVs are in testing. AVs rely on a sophisticated on-board navigation systems to react to on-the-ground conditions. However, to provide redundancy and reduce on-board computations, many also leverage detailed roadway/traffic data. This presentation will provide an overview of applications of mobile lidar and GIS to support development of support data that help guide AV navigation

11:45am-12:15pm

Sarah Searcy, *NCDOT*
Amanda Good, *Kimley-Horn*

NCDOT's Connected Autonomous Shuttle Supporting Innovation (CASSI) Project.

The North Carolina Department of Transportation (NCDOT) is testing a low-speed, electric autonomous shuttle as a transit option by partnering with communities in the state. The shuttle uses Light Detection and Ranging (LiDAR), Global Positioning System (GPS), Inertial Measurement Unit (IMU), odometry, and camera systems to navigate on a pre-determined, pre-mapped route without a driver. For this presentation, NCDOT will share updates on the state of the CAV industry and how the Connected Autonomous Shuttle Supporting Innovation (CASSI) project helps us better understand the safety, efficiency, and mobility benefits of this new technology

12:15pm – 1:15pm

Lunch & Door Prizes*

1:15pm – 1:30pm

UAV Demonstration Instructions

1:30pm – 2:00pm

BREAK – Relocate to Demonstration Field

2:00pm – 4:00pm

UAV Demonstrations (*Weather Permitting*)

Hands on Flight Demo – Matt Nanney AECOM & Carl Stearns UNCCH

Create two deconflicted areas and allow folks to test out flight maneuvers demonstrate some flight maneuvers as well as an autonomous mapping mission. Demo the initial steps in the orthometric data processing with Pix4D Mapper.