UAS Applications in Transportation

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Registration Link: https://washington.zoom.us/webinar/register/WN_hixlmGTsTQ6acgHEKo01jg

Uncrewed Aircraft Systems (UAS) are a powerful and increasingly-prevalent tool used by transportation agencies. Some of the primary applications of UAS include bridge inspection, traffic network monitoring, construction site monitoring, surveying and mapping, and landslide site monitoring. UAS enable safe and efficient acquisition of imagery, which can be analyzed visually and/or post-processed to generate high-resolution geospatial data products, such as orthomosaics and 3D point clouds. Additionally, UAS can be equipped with other sensors, such as lidar. However, there are also a number of challenges to enterprise-scale implementation of UAS, ranging from establishing pilot qualification procedures, to developing operational protocols and supporting the IT infrastructure needed manage huge volumes of data. Additional challenges relate to development and testing of algorithms and workflows for efficient auto-extraction of information from the data acquired by UAS. Through a series of eight research projects spanning seven years, researchers at Oregon State University have investigated UAS for the transportation applications listed above. UAS equipped with cameras and lidar systems have been used to acquire data, and numerous processing and analysis workflows have been tested. This presentation will cover the results of these studies, lessons learned, and recommendations for operational use of UAS by transportation agencies. We will conclude with a look ahead at anticipated developments in this rapidly-evolving technology.

Presenter

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Dr. Christopher Parrish's research focuses on uncrewed aircraft systems (UAS), lidar, structure from motion (SfM) photogrammetry, hyperspectral imagery and other emerging technologies for rapid acquisition of geospatial data. Chris has served as Principal Investigator (PI) for UAS-related research projects sponsored by PacTrans, ODOT, FHWA, and NOAA. In 2018, Chris chaired the PacTrans-sponsored UAS in Transportation Research to Operations Expo. Chris holds a Ph.D. in Civil Engineering with an emphasis in Geospatial Information Engineering from the University of Wisconsin-Madison and an M.S. in Civil and Coastal Engineering with an emphasis in Geomatics from the University of Florida. He is President-Elect of the American Society for Photogrammetry and Remote Sensing (ASPRS), Director of OregonView, and Coastal Processes Lead for the NASA Surface Topography and Vegetation (STV) Incubation Study. Prior to joining OSU, Chris worked for NOAA, serving in multiple positions including as a junior officer on a hydrographic survey ship, geodetic liaison officer in the National Geodetic Survey (NGS), and lead physical scientist in NGS's Remote Sensing Division.