

March 28, 2019

“USGS Small UAS for Scientific Research and Operational Applications”

Abstract

The U.S. Geological Survey (USGS) National Unmanned Aircraft Systems (UAS) Project Office is a leader in UAS research and the integration of efficient, safe, and cost-effective UAS data collection within the Department of the Interior and the USGS.

Since 2008, the USGS has made significant progress with integrating UAS into their data collection workflow. This progress involved conducting many proof-of-concept projects in several areas of research and land-management. The overall goal of these projects was to make the UAS platforms and sensors a commonly used remote sensing tool in the collection of data for real-world problem solving.

While cutting edge UAS technology receives much attention in the media, within universities, in public agencies and in the commercial world, the collection and analysis techniques of aerial imagery from sensors on-board UAS are not significantly different than that of traditional data historically captured by satellites, manned aircraft and many other remote sensing platforms for several decades by USGS scientists. The advent of UAS however, does provide exciting new capabilities by increasing data collection mobility, resolution, accuracy, and safety, as well as potentially reducing operational data collection costs.

Acquisition of Lidar, Radar, Thermal, Hyperspectral, and radiometric imagery and its availability to the public will greatly assist explorationists. Techniques for feature extraction, 2D contour and 3D volume digital representations have been successfully employed.

Results from the previous ten years of UAS research by the USGS has shown great potential for the technology, which is now providing a new tool in the toolbox for researchers and land managers.

Our Presenter

Mr. Jeff Sloan, Project Leader

USGS National Unmanned Aircraft Systems Project Office



Jeff Sloan holds a Bachelor of Science Degree in Geography from the University of Northern Iowa (1981-85) and continued graduate work in Geographic Information Systems at the University of Denver in Denver, Colorado (1991-92). He has worked as a Cartographer in the U.S. Federal Government for 34 years beginning with the U.S Dept. of Defense - Defense

Mapping Agency, with U.S. Dept. of Homeland Security - Operations Center and the Customs and Border Protection in Washington D.C, and a majority of his career with the Dept. of the Interior – USGS in Denver, Colorado.

His background is primarily in the areas of cartography, photogrammetry, and remote sensing pertaining to domestic and international mapping and monitoring. He has been involved with UAS operations since 2008 and in 2014, he took over as the Project Leader for the USGS National Unmanned Aircraft Systems Project Office in Lakewood, Colorado.