GSA 2019 Short Course: 501. High Resolution Topography and 3D Imaging I: Introduction to Terrestrial Laser Scanning

868 Chris Crosby September 20, 2019 Short Courses 6696

Geological Society of America Annual Meeting Short Course, Phoenix, AZ

501. High Resolution Topography and 3D Imaging I: Introduction to Terrestrial Laser Scanning

Fri., 20 Sept., 8 a.m.–5 p.m

Room 103AB, West Building, Phoenix Convention Center

Instructors: Christopher Crosby & Keith Williams, UNAVCO

Abstract: This one-day course will provide faculty, students, and professionals with an introduction to terrestrial laser scanning (TLS a.k.a., ground-based lidar) for research and education. TLS provides high-resolution three-dimensional images of geologic features and is a powerful tool for applications ranging from outcrop mapping to analysis of earth-surface processes. The course will focus on TLS technology, data collection, processing and analysis, and examples of science and educational applications. A combination of lectures and hands-on demonstrations of TLS equipment and data processing will be used.

Agenda

8:00 AM Welcome & Course Introduction, About UNAVCO

8:30 AM Intro to laser scanning, Applications Examples (Crosby)

9:30 AM Break

9:50 AM Overview of Data Acquisition Concepts & TLS Workflow (Williams)

11:00 AM Hands on demos w/ scanner (1/2 group, 2x scanners - outside)

Overview of Data Processing and Analysis (1/2 group - classroom)

12:30 PM LUNCH

1:30 PM Hands on demos w/ scanner (1/2 group, 2x scanners)

Overview of Data Processing and Analysis (1/2 group - classroom)

3:00 PM Future trends, community support resources, educational resources. Afternoon session Q&A and concluding thoughts.

- Analyzing High Resolution Topography with TLS and SfM (SERC-hosted resources and curriculum for field education with TLS & SfM)
- UNAVCO Geodesy Field Education resources (links to UNAVCO support resources for field education, including TLS and SfM).

3:45 PM Review scan data

4:20 PM Participants fill out GSA course evaluations

4:30 PM Adjourn

Additional resources:

- hh_tls_14_14022014_allreturns_upper.laz (Rim Fire Yosemite, NP TLS sample dataset from S. DeLong, USGS)
- 2017 Big East LAS
- 2018 Big East rockfall LAS
- 2018 Big East rock block LAS
- 2018 Big East all data LAS

Online URL:

https://kb.unavco.org/article/gsa-2019-short-course-501-high-resolution-topography-and-3d-imaging-i-introduction-to-terrestrial-laser-scanning-868.html