



**Thursday, February 16, 2017—AEG Dinner Meeting**

**Topic:** Drones and Structure from Motion in the Geosciences

**Speaker:** Tait Russell, AeroScan

**Time:** 5:30 – Social Hour  
 6:30 – Dinner  
 7:30 – Presentation

**Place:** Pyramid Alehouse, 1201 First Ave S, Seattle, WA 98134, 206-682-3377. There is free parking in front and back of the building (ignore the pay for parking signs).

**Dinner:** A selection of Pizza, Caesar salad, Nanaimo Bars, and Cookies.

**RSVP:** Register at <http://pugetsoundaeg2.bpt.me/> by **4 PM Friday, February 10**, no exceptions. Registering by the deadline assures you get a meal and a seat.

**Cost:** \$40 for members; \$45 for non-members; \$15 for students. Non-members always welcome! Note that the pay at the door option is ONLY if you CANNOT use a credit card. If you are paying at the door, please pay by cash or check (check payable to AEG).

Our gracious sponsor, Holt Services, has made it possible for the AEG Puget Sound Chapter to provide meals at a reduced rate for AEG Student Members. Please go to <http://www.holtservicesinc.com/> for more information about Holt Services.

Student membership in AEG is free. Please follow this link [www.aegweb.org](http://www.aegweb.org) and click on the “Join AEG” tab if you are interested in becoming a member of AEG.

Puget Sound Chapter Officers:

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Chad Lukkarila Past Chair Kleinfelder <a href="mailto:clukkarila@kleinfelder.com">clukkarila@kleinfelder.com</a> 425-636-7900			



**Presentation Abstract:**

Drones and Structure from Motion (SfM), a form of photogrammetry, can be effective tools in the geosciences. The first radio-controlled drone was the 1916 Ruston Proctor Aerial Target. The technology and popularity of drones have skyrocketed in the century following the Ruston, especially in the last five years. The aerial photographs acquired by drones can be used for mapping and 3D modeling by running them through a SfM program. Drones and SfM are helpful for a suite of services in the geosciences. My University of Washington colleges and I monitored the glacial ice-mass balance of the Easton Glacier terminus on Mount Baker by employing a drone and applying SfM. I also used a drone and SfM to map a rockslide, creating a photomosaic and Digital Elevation Model (DEM) with resolutions of 1cm<sup>2</sup>/pixel and 4cm<sup>2</sup>/pixel, respectively. Cunliffe et al. (2016) used a drone and SfM to model and monitor dryland biomass. They were able to create a DEM with a resolution of <1cm<sup>2</sup>/pixel, which resolved individual biomass stocks as small as a few cubic centimeters. Casella et al. (2016) mapped coral reefs by flying a consumer-grade drone and applying SfM. Their photomosaic and bathymetric DEM of the coral have resolutions of 0.76cm<sup>2</sup>/pixel and 1.56cm<sup>2</sup>/pixel, respectively. Many other studies in the geosciences would benefit from adopting drones and SfM.

**Speaker Bio:**

Tait Russell has lived in the Puget Lowland for over two decades. While working on his Bachelor's degree in Earth and Space Sciences at the University of Washington, he studied the glacial geology of the Puget Lowland under the advisement of Dr. Terry Swanson. Tait also began studying the ice-mass balance of Mount Baker using a variety of remote sensing techniques as an undergraduate. The results of the study were presented at the 2014 Geological Society of America (GSA) meeting in Vancouver, Canada. He concluded the Master's in Earth and Space Sciences - Applied Geosciences (MESSAGE) program in March of 2016 by completing his capstone project "Calculating the Uncertainty of a Structure from Motion (SfM) Model, Cadman Quarry, Monroe, Washington." After graduating with his Master's degree, Tait opened his own company, AeroScan, LLC, which specializes in aerial imagery and 3D modeling services.

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## AEG PUGET SOUND SECTION 2016–2017 CALENDAR AND ANNOUNCEMENTS

### 2016–2017 Dinner Meetings:

- September 22, 2016 (Thu)—Michael J. Marasa (Hayward Baker); Sinkhole Remediation at the National Corvette Museum; Joint meeting with ASCE; Best Western Executive Inn, Seattle, WA.
- October 20, 2016 (Thu)—Eliya Gangar (GeoEngineers) and Dave Cook (Aspect); Geohazard Reconnaissance and Preliminary Recommendations for Post-Earthquake Villages of Duguna Ghadi, Sindhupalchowk, Nepal. Best Western Executive Inn, Seattle, WA. Sponsored by [Standard Environmental Probe](#)
- November 17, 2016 (Thu)—Kate Mickelson and Stephen Slaughter (WA DNR); The New DNR Landslide Hazards Program: Overview of the Program and Our First County-Wide, Landslide Mapping Project; La Quinta Inn & Suites, Tacoma, WA. Sponsored by [GeoEngineers](#)
- *Cancelled due to weather:* December 8, 2016 (Thu)—Holiday Party, Personal slide shows from AEG members and family, pizza, gift raffle, food drive donations. Pyramid Alehouse, Seattle, WA.
- January 19, 2017 (Thu)—Sevin Bilir and John Bethel (King County); Mapping of Potential Landslide Hazards along the River Corridors of King County; Best Western Executive Inn, Seattle, WA. Sponsored by [Fremont Analytical](#)
- February 16, 2017 (Thu)—Tait Russell (AeroScan); Drones and Structure from Motion in the Geosciences; Pyramid Alehouse, Seattle, WA. Sponsored by [Holt Services](#)
- March 16, 2017 (Thu)—Bill Dershowitz (Golder); How to Do Fractures Right: National Academies of Science Recommendations for Subsurface Characterization, Modeling, Monitoring, and Remediation of Fractured Rocks. Best Western Executive Inn, Seattle, WA. Sponsored by [Bravo Environmental](#)
- April 20, 2017 (Thu)—John Murnane, LHG (Holocene Drilling); When a Good Job Goes Bad: Case Studies from the Driller’s Perspective. Best Western Executive Inn, Seattle, WA. Sponsored by [Holocene Drilling](#)
- May 18, 2017 (Thu)—Scott Andersen, Ph.D., P.E. (FHWA), 2016–2017 Jahns Lecturer; and Student Posters; Best Western Executive Inn, Seattle, WA. Sponsored by [Aspect Consulting](#)

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ASSOCIATION OF ENVIRONMENTAL & ENGINEERING GEOLOGISTS  
PUGET SOUND CHAPTER  
*Meeting Announcement*

**Renew Your AEG Membership:**

Membership Has Benefits! Renew your membership on-line at [www.aegweb.org](http://www.aegweb.org) (look for the “Join AEG” tab on the home page). Or if you prefer, call AEG at 844-331-7867 to complete your renewal over the phone.

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