

Tamara L. Carley

Assistant Professor

Lafayette College Department of Geology and Environmental Geosciences

116 Van Wickle Hall
Easton, PA 18042

(610) 330-5754
carleyt@lafayette.edu

Academic Background

Vanderbilt University

Doctor of Philosophy: Environmental Engineering (Envi. Sci Option)

Nashville, TN

- Dissertation: The generation and evolution of silicic magma and juvenile crust: Insight from the Icelandic zircon record
- Advisor: Dr. Calvin F. Miller

August 2014

Master of Science: Earth and Environmental Sciences

2010

Whitman College

Bachelor of Arts: Environmental Sciences—Geology

Walla Walla, WA

- *Summa cum laude*
- Honors in course of study

2004

University of Otago

New Zealand

Semester abroad

2007

Publications

Carley TL, Miller CF, Wooden JL, Padilla AJ, Schmitt AK, Economos RC, Bindeman IN, Jordan BT (in press) Iceland is not a magmatic analog for the Hadean: Evidence from the zircon record: *Earth and Planetary Science Letters*. DOI: 10.1016/j.epsl.2014.08.015.

Pamukcu AS, **Carley TL**, Gualda GAR, Miller CF, Ferguson CA (2013) The evolution of the Peach Spring giant magma body: Evidence from accessory mineral textures and compositions, bulk pumice and glass geochemistry, and rhyolite-MELTS modeling: *Journal of Petrology*, v. 54, no. 6, p. 1109-1148, doi: 10.1093/petrology/egt007.

Bindeman I, Gurenko A, **Carley T**, Miller C, Martin E, Sigmarsson O (2012) Silicic magma petrogenesis in Iceland by remelting of hydrothermally-altered crust based on oxygen isotope diversity and disequilibria between zircon and magma with implications for MORB: *Terra Nova*, v. 24, p. 227-232, doi:10.1111/j.1365-3121.2012.01058.x.

Gualda GAR, Ghiorso MS, Lemons RV, **Carley TL** (2012) Rhyolite-MELTS: A modified calibration of MELTS optimized for silica-rich, fluid-bearing magmatic systems: *Journal of Petrology*, v. 53, no. 5, p. 875-890, doi:10.1093/petrology/egr080.

Carley TL, Miller CF, Wooden JL, Bindeman IN, Barth AP (2011) Zircon from historic eruptions in Iceland: Reconstructing storage and evolution of silicic magmas. *Mineralogy and Petrology*, Special Issue Accessory Minerals. V. 103, no. 1-2, pp. 135-161.

Manuscripts in Preparation

Carley TL, Sigmarsson O, Miller CF, Vogla E (in prep) Using detrital zircon to resolve the origin and longevity of abundant silicic magmatism at Breiduvik volcano, East Iceland: for *American Mineralogist*.

Carley TL, Miller CF, Coble MA, Hanchar J, Fisher C, Padilla AJ, Banik TJ, Schmitt AK, Economos RC, Jordan BT (in prep) Isotopes in time: Iceland's evolving history captured by zircon: for *Geology*

Research Grants

NSF Graduate Research Fellowship [\$123,000] In support of self-designed research into the origins of Icelandic rhyolites and granites using zircon as an investigative tool	2010-2013
NSF EAR Research Grant [\$332,920] PI: Dr. Calvin Miller (VU); "Zircon in Iceland: Elucidating generation and evolution of silicic magma and juvenile crust"; involvement: all stages of project and proposal creation	2012-2015
National Geographic Society Research Grant [\$21,100] PI: Dr. Calvin Miller (VU); "Memories of ancient continents, foreshadowing a new continent: Zircon and the Icelandic crust;" involvement: all stages	2012-2013
GSA Graduate Student Research Grant [\$1,800] Self-designed research of zircon in historic rhyolites of Iceland	2009-2010

Academic Honors and Awards

Philanthropic Education Organization (P.E.O.) Endowed Scholar Award [\$15,000]	2013-2014
Mensa Foundation Scholarship [\$1,000]	2007-2008
Washington State Legislature: Washington Scholar [\$22,780]	2004-2008
Vanderbilt University	
IBM Graduate Fellowship [\$20,000]	2010-2014
Teaching as Research Fellowship [\$3,000]	2011
Harold Stirling Vanderbilt Graduate Scholarship [\$12,000]	2008-2010
Whitman College	
Dr. Albert Ripley Leeds Prize in Geology	2008
Order of Waiilatpu Honor Society	2007-present
Abshire Research Scholar Award [\$800]	2007-2008
Alexander J. Anderson Scholarship [\$24,000]	2004-2008

Professional Development

Special topic workshops and training

- Visual Learning: Transforming the Liberal Arts (Carleton College, MN)
2012
- Volcanic Crises Awareness Training, sponsored by FEMA and the National Disaster Preparedness Training Center (San Francisco, CA)
2012
- Atlantic Conference on Eyjafjallajokull and Aviation (Keflavik, Iceland)
2010
- Penrose Conference on low δO^{18} signatures, (Idaho Falls, ID, Yellowstone)
2009

Fieldtrips

- IAVCEI First International Workshop on Volcano Geology (Madeira)
2014
- IAVCEI Fieldtrip: Kikai caldera and southern Kyushu, Products of a large silicic magmatic system (Japan)
2013
- Southeastern GSA Fieldtrip: Volcanic Evolution of Montserrat (Montserrat)
2013
- Eyjafjallajokull Eruption Workshop and Field Forum (Iceland)
2010
- USGS Caetano Caldera fieldtrip (Battle Mountain, NV)
2009

Teaching-oriented coursework (semester-long)

- Inquiry-based and Problem-based Learning in the College Classroom (CIRTL Network: Center for the Integration of Research, Teaching and Learning)
2011
- Preparation for Careers in Academia (Vanderbilt)
2009

Teaching and Mentoring Experience

Vanderbilt Center for Teaching (VU-CFT) and the Center for the Integration of Research, Teaching and Learning (CIRTL national network)

- CIRTL Fellowship: assisting with the launch of a three-year, multi-institution effort to create two massive open online courses (MOOCs) on the topic of evidence-based teaching practices for future science, technology, engineering and mathematics (STEM) faculty, as part of an NSF-WIDER grant to CIRTL network (Spring 2014).
- Teaching as Research Fellowship: designed a project titled: “Constructing multi-scale, iterative, concept maps for management of geologic subject matter;” Implemented project in Vanderbilt Earth Materials (Mineralogy) course. Concept and results presented at a national “Visual Learning: Transforming the Liberal Arts” conference (2012)

Outreach Education

- Developed and taught a week-long course titled “Geologic detectives: Investigating Volcanoes.” Approved by Vanderbilt Program for Talented Youth to be taught to rising 2nd and 3rd graders in the summer of 2014 (multiple sessions)
- University School of Nashville: “Meet a Scientist: what does a geologist do?” Question and answer sessions and hands-on activities; two groups, with ninety 5th graders total (2013)
- Philanthropic Education Organization: “Volcanic Hazards: Not Science Fiction.” Presentation to a social group dedicated to the education of women; 60 women in attendance (2013)
- Oak Hill Elementary School “Introduction to rocks, minerals and volcanoes.” Presentation, hands-on activities; 5th grade class of 15 students (2010).

Undergraduate Research Mentor (Vanderbilt University)

- Daniel Birmingham (2012-2013): “Shallow magmatic provenance of quartz: a cathodoluminescence zoning signature;” senior honors thesis, Vanderbilt and Stanford-USGS SHRIMP lab work, professional presentation (SE GSA, Puerto Rico)
- Kathleen Russell (2011-2012): “Krafla zircon: Insights into generation of silicic magma at an Icelandic central volcano;” senior thesis, Icelandic fieldwork, Vanderbilt and Stanford-USGS SHRIMP lab work, professional presentation (Cordilleran GSA, Mexico)
- Addy Petrilla (2010): senior research experience, Icelandic fieldwork

Course Development

- Designed an interdisciplinary course titled “Iceland’s geology: Fire, ice, and cultural impacts.” Approved by Vanderbilt University to be taught in the summer of 2014. Three weeks of labs, coursework and fieldtrips at Vanderbilt followed by two weeks of hands-on geologic fieldwork and cultural experience in Iceland.

Guest Lectures

- Whitman College Geology Senior Seminar: “From Liberal Arts to Graduate School” (2013)
- Whitman College Public Lecture: “The birth of a continent? Investigating Iceland’s felsic history with implications for the early Earth” (2013).
- Nashville State Community College: Introduction to Geology. Lecture: Icelandic volcanoes, living with hazards (four lectures total; 2010-2011)

Teaching Assistant (Vanderbilt University)

- Volcanoes—Earth and Human Impacts, a freshman writing seminar: Assistant, grader and occasional lecturer (15 students; Fall 2013)
- Transport Processes in Earth and Environmental Systems: classroom assistant and grader (8 students; Fall 2013)
- The Dynamic Earth: taught four lab sections (20 students each; 2008-2010)
- Volcanoes-Impact on Earth and Society: Discussion leader and assistant instructor, assisted with three class sections (~20 students each; 2009-2010)

Research Experience

Dissertation Research

Elucidating the generation and evolution of silicic magma and juvenile crust—Translating stories recorded in the Icelandic zircon record

- Dissertation under the direction of Dr. Calvin Miller
- Objectives: (1) contribute compelling evidence to the debate over fractional crystallization vs. partial melting dominating felsic petrogenesis in Iceland; (2) explore spatial and temporal trends in zircon trace element and isotopic signatures to assess the influences of local tectonic setting and climate regimes on felsic petrogenesis; (3) critically evaluate whether Iceland is indeed an appropriate modern analogue for Hadean crust construction; (4) seek robust evidence to support or refute the hypothesis that slivers of ancient continental crust are trapped beneath Iceland and influence its evolution; (5) provide constraints for the longevity of Icelandic central volcano activity; (6) determine if Icelandic zircons, like Icelandic rhyolites, are unique or distinct in a global sense
- Primary zircon-based evidence: CL images of zoning and inheritance; U-Th and U-Pb radiometric dating, trace element geochemistry, oxygen and hafnium isotopes
- Supporting evidence: petrography; bulk rock geochemistry and isotopes (Pb, Hf, Nd)
- Sample set: >1000 zircons analyzed from 9 volcanic, 6 intrusive, and 10 detrital systems; samples span Iceland's history (15.5 Ma to present) and tectonomagmatic settings (e.g. on vs. off rift)
- Status: field and analytical work completed; all objectives addressed. Writing dissertation and related manuscripts. Database and abundant samples can support many future research endeavors (for myself and student collaborators).

Master's Research

(I) Zircon in historic eruptions, Iceland

- Objective: investigate felsic origins and magmatic evolutions at central volcanoes with precisely-known eruption ages (historical record); compare and contrast zircons from volcanoes in different tectonic settings (on-rift, off-rift, propagating-rift)
- Primary zircon-based evidence: CL imagery of zoning and inheritance; *in situ* U-Th radiometric dating, *in situ* trace element geochemistry

(II) Modeling magma evolution leading to the Peach Spring Tuff super eruption (AZ, NV, CA)

- Objective: use geochemical and thermodynamic computer modeling to assess whether (and under what conditions), supersized bodies of magma may prime themselves for, or drive themselves to, catastrophic eruptions
- Primary techniques: bulk rock and glass geochemistry, rhyolite-MELTS modeling

Undergraduate Honors Thesis

Mineralogical provenance of Missoula Flood deposits: a case study for the development of the Portable X-Ray Fluorescence spectrometer (PXRF)

NSF Research Experience for Undergraduates (REU)

Interdisciplinary Studies in Tsunami Impact and Mitigation

- Chemical analysis of minor and reworked paleo-tsunami deposits (2007)
- The effect of tsunamis on wetlands: monitoring microbial populations (2006)

Planetary Geology Research Assistant

- Characterizing the morphology of small-scale basaltic features in the Tharsis Montes region of Mars (2007)
- Remote sensing and ground-truthing in the East Snake River Plain, ID, with implications for understanding Martian geomorphology (2006)

Analytical Experience

Graduate Research (dissertation and master's)

Mass Spectrometry

- Sensitive High Resolution Ion Microprobe Reverse Geometry (SHRIMP-RG)
 - *In situ* trace element geochemistry (zircon, quartz); U-Pb and U-Th dating (zircon): Stanford-USGS
- Secondary ion mass spectrometry (SIMS): CAMECA ims1270
 - *In situ* oxygen isotope analysis of zircon: UCLA-NSF
- Laser fluorination and gas source mass spectrometry: MAT 253
 - Oxygen isotope analysis of glass and minerals: University of Oregon
- Solution multi-collector inductively coupled plasma mass spectrometry(MC-ICPMS): ThermoFinnigan Neptune
 - Bulk rock isotopes (Pb, Hf, Nd): Washington State University
- Double focusing, high-resolution, multi-collector laser ablation multi-collector inductively coupled plasma mass spectrometry(MC-ICPMS): Finnigan Neptune
 - *In situ* hafnium isotope analyses of zircon: Memorial University

Scanning electron microscopy (SEM)

- Cathodoluminescence (CL): Tescan Vega 3 LM variable pressure, JEOL JSM 5600
- Energy Dispersive X-Ray Spectroscopy (EDS): Tescan Vega 3 LM variable pressure

Undergraduate Research

- Portable X-Ray fluorescence spectrometer (NSF-REU, Whitman; 2007-2008)
- X-Ray diffraction (Whitman, 2007-2008)
- Analysis of MOLA, MOC, and THEMIS imagery of Martian volcanic landforms in Gridview (research assistance; 2007)
- Ground Penetrating Radar (field assistant, 2006)
- High-resolution GPS Trimble profiling (field assistant, 2006)

Fieldwork

Graduate Research (dissertation and master's)

Iceland

- Five fieldwork sessions, totaling approximately sixteen weeks (2009-2013)
- Investigation of, and sample collection from, volcanic, intrusive, and sedimentary (rock and river sand) systems, spanning Iceland's history (~16 Ma to present)

Peach Spring Tuff Supereruption (AZ, NV, CA)

- Five fieldwork sessions, including two collaborative field forums, totaling approximately seven weeks in the field (2008-2011)
- Field characterization and sample collection of intracaldera, proximal outflow and distal tuff deposits from a mid-Miocene super eruption

Undergraduate Research

- Oregon Coast: paleotsunami deposits and modern hazards (2006, 2007; NSF-REU)
- Thailand: 2004 tsunami destruction and recovery (2006, 2007; NSF-REU)
- Walla Walla Valley, WA: mineralogical provenance of Missoula and pre-Missoula Flood deposits Beds (2007; Whitman)

Field Assistance

- Mount Saint Helens: investigations of early eruptive stages (2008; Vanderbilt)
- East Snake River Plain, ID: ground-truthing exercises with implications for Martian geomorphology (2006; Notre Dame and Idaho State Universities)

Academic Service

- Co-organizer of topical session, GSA National Meeting (Denver) 2013
- “Illuminating felsic origins: Using novel multiple-method approaches to investigate the birth of silicic magmas” (Session T218)
- Vanderbilt Earth and Environmental Sciences Seminar Committee 2010-2013

Professional Memberships

Geological Society of America	2006-present
American Geophysical Union	2009-present
Mineralogical Society of America	2011-present
Sigma Xi Scientific Research Society	2012-present

Conference Abstracts

*(Reverse chronological order; * indicates student under Tamara Carley's mentorship)*

Miller CF, Frazier WO, **Carley TL**, Claiborne LL, Padilla AJ, Thomas D, Gualda GAR (2014) Zr/Sr ratios distinguish cool & wet from hot & dry magmatic suites. *Geological Society of America Abstracts with Programs*, 46(6). Abstract #249880 (Vancouver, Canada)

Padilla AJ, Miller CF, Bindeman IN, Economos RC, **Carley TL**, Banik TJ, Schmitt AK (2014) Generating the world's lowest magmatic zircon d180: Melting of intensely hydrothermally altered sources at Austurhorn Intrusive Complex, SE Iceland. *Geological Society of America Abstracts with Programs*, 46(6). Abstract #245937 (Vancouver, Canada)

Thomas D, Miller CF, **Carley TL**, Covey A (2014) Partition coefficients for zircon from high-temperature Icelandic rhyolites, determined by *in situ* analyses of glass and crystal rims. *Geological Society of America Abstracts with Programs*, 46(6). Abstract #248559 (Vancouver, Canada)

Carley TL, Miller CF, Wooden JL, Padilla AJ, Sigmarsson O, Jordan BT, Fisher CM, Hanchar JM, Schmitt AK, Economos R (2013) Pairing ages and isotopes in the Icelandic zircon record: adding critical insight to felsic petrogenesis with U-Pb, U-Th, O and Hf. *Geological Society of America Abstracts with Programs*, 45(7). Abstract #26-2 (Denver, USA)

Padilla AJ, Miller CF, **Carley TL**, Economos RC, Schmitt AK, Fisher CM, Hanchar JM, Bindeman IN, Wooden JL, Sigmarsson (2013) Elucidating the construction of the Austurhorn Intrusion, SE Iceland, using zircon elemental and isotopic geochemistry and geochronology. *Fall Meeting, American Geophysical Union* (San Francisco, USA)

Miller CF, McDowell SM, **Carley TL**, Frazier WO, Pamukcu AS, Padilla A DeJ, Claiborne LL, Flanagan DM, Gualda GAR, Miller JS, Wooden JL, Mapes RW (2013) Hot/cold, wet/dry, big/small, erupt/ stall, juvenile/anatectic? – Multiple personalities of felsic magmatism. *VM Goldschmidt Conference Program with Abstracts* (Florence, Italy)

Banik TJ, Miller CF, Hoskuldsson A, **Carley TL** (2013) Evolution of silicic magmas at Icelandic central volcanoes during rift relocations: *IAVCEI Scientific Assembly, forecasting volcanic activity* (Kagoshima, Japan)

Carley TL, Miller CF, Wooden JL, Bindeman IN, Economos RC, Schmitt AK, Fisher CM, Hanchar JM (2013) Icelandic zircon: investigating felsic magmatism in a unique oceanic environment: *IAVCEI Scientific Assembly, forecasting volcanic activity* (Kagoshima, Japan)

Padilla AJ, **Carley TL**, Miller CF, Wooden JL, Economos RC, Schmitt AK, Fisher CM, Hanchar JM (2013) Evolution of the Austurhorn Intrusive Complex revealed by zircon elemental and isotopic geochemistry and geochronology: *IAVCEI Scientific Assembly, forecasting volcanic activity* (Kagoshima, Japan)

Birmingham DP,* **Carley TL**, Miller CF, Covey AK (2013) Shallow magmatic provenance of quartz: a cathodoluminescence zoning signature: *Southeastern Section GSA 62nd Annual Meeting*, Abstract #29-12 (San Juan, Puerto Rico)

Carley TL, Bruff DO, Gualda GAR (2012) Synthesizing multi-scale geologic concepts by creating iterative, zooming, concept maps with Prezi: *Visual learning: transforming the liberal arts* (Carleton College, Northfield MN, USA)

Carley TL, Gualda GAR, Ghiorso MS, Miller CF (2012) Eruption triggering of giant magma bodies by internal versus external forcing: a rhyolite-MELTS study: *Fall Meeting, American Geophysical Union*, Abstract V11A-2726 (San Francisco, USA)

Carley TL, Miller CF, Padilla AJ, Wooden JL, Bindeman I, Schmitt AK, Economos RC, Fisher CM, Hanchar JM (2012) Icelandic zircon: Illuminating juvenile silicic crust construction: *The 22nd V.M. Goldschmidt Conference* (Montreal, Canada)

Padilla AJ, Miller CF, **Carley TL**, Wooden JL, Economos RC, Schmitt AK, Fisher CM, Hanchar JM (2012) Elucidating the complex thermal and fluid history of Austurhorn Intrusive Complex: zircon elemental and isotopic geochemistry: *The 22nd V.M. Goldschmidt Conference* (Montreal, Canada)

Miller CF, Pamukcu AS, Ferguson CA, **Carley TL**, Gualda GAR, Wooden JL, McIntosh WC, Lidzbarski MI, Miller JS, McDowell SM (2012) Peach Spring Tuff, Arizona-California-Nevada, USA: generating an isolated supereruption (Keynote Talk): *The 22nd V.M. Goldschmidt Conference* (Montreal, Canada)

Carley TL, Miller CF, Wooden J, Padilla AJ, Russel KM, Bindeman I, Schmitt AK, Economos R (2012) Juvenile silicic magmatism and crust construction: Iceland as a model for early-Earth or Iceland as a unique petrogenetic environment? *108th Annual Cordilleran GSA*, Abstract #201738 (Querétaro, Mexico)

Lidzbarski M, Miller J, Miller C, Wooden J, Vazquez J, Pamukcu AS, **Carley TL**, Gualda GAR (2012) Geochronology and trace element analysis of Peach Spring Tuff zircons and their bearing on growth of the Peach Spring Tuff magma chamber and eruption: *108th Annual Cordilleran GSA*, Abstract #201630 (Querétaro, Mexico)

Miller CF, Padilla AJ, Pamukcu A, **Carley TL**, Claiborne LL, Flanagan DM, Gualda GAR, Wooden JL, Miller J, Lidzbarski M (2012) Reinvigorating stagnant silicic magma systems: volcanic and plutonic views: *108th Annual Cordilleran GSA*, Abstract #201771 (Querétaro, Mexico)

Miller CF, Pamukcu AS, Ferguson CA, **Carley TL**, Gualda GAR, Wooden JL, McIntosh WC, Lidzbarski M, Miller JS, McDowell SM (2012) Peach Spring Tuff, AZ-CA-NV USA: Generating an isolated supereruption: *The 22nd V.M. Goldschmidt Conference* (Montreal, Canada)

Padilla AJ, Miller CF, Wooden JL, **Carley TL**, Economos RC, Schmitt AK, Fisher CM, Hanchar JM (2012) Elucidating the complex thermal and fluid history of Austurhorn Intrusive Complex, Iceland: Zircon elemental and isotopic geochemistry: *The 22nd V.M. Goldschmidt Conference* (Montreal, Canada)

Russell KM,* **Carley TL**, Miller CF, Wooden J, Schmitt AK, Economos R, Fisher CM, Hanchar JM (2012) Krafla zircon: Insights into generation of silicic magma at an Icelandic central volcano: *108th Annual Cordilleran GSA*, Abstract #201737 (Querétaro, Mexico)

Carley TL, Miller CF, Wooden JL (2011) Pre-eruptive history and longevity of felsic magma in Iceland illuminated by *in situ* U-Th dating and trace-element analysis of zircon from historical eruptions: *Mineralogical Magazine*, Vol. 75 (3), p. 623, *The 21st V.M. Goldschmidt Conference* (Prague, Czech Republic)

Miller CF, Gualda GAR, Padilla ADJ, Pamukcu AS, Claiborne LL, **Carley TL**, Flanagan DM (2011) Reviving moribund intrusive complexes: Mafic thermal input, the accessory mineral record, and the pluton-volcano connection: *AGU EOS Transactions, Joint Assembly Supplement*, V11G-05 (San Francisco, USA)

Padilla AJ, Miller CF, **Carley TL**, and Wooden J, 2011. Magmatic Evolution of the Austurhorn Intrusive Complex, SE Iceland: Insights from zircon geochemistry, zoning, and morphology. *XXVth International Union of Geodesy and Geophysics General Assembly* (Melbourne, Australia)

Carley TL, Gualda GAR, Ghiorso MS, Miller CF (2010) Modeling the destabilization of large-volume silicic magmatic systems using rhyolite-MELTS and the Peach Spring Tuff. *AGU EOS Transactions, Joint Assembly Supplement*, V43A-2351 (San Francisco, USA)

Flanagan DM, Lowenstern JB, **Carley TL**, Miller CF, Wooden JL (2010) Zircon from the Alid Volcanic Center, Eritrea: Implications for magmatic evolution. *GSA Abstracts with Programs*, 42(5): 286-12 (Denver, USA)

Gualda GAR, Ghiorso MS, Vaum RV, **Carley TL** (2010) Rhyolite-MELTS: A modified calibration of MELTS optimized for silica-rich, fluid-bearing magmatic systems. *AGU EOS Transactions, Joint Assembly Supplement*, V43A-2352 (San Francisco, USA)

Carley TL, Miller C, Ferguson CA, Gualda GAR, Pamukcu AS, Wooden JL, Miller J, Gaudio SJ, Varga RJ (2009) Supereruption of the Peach Spring Tuff: New insights from caldera-fill and outflow pumice and accessory minerals. *Geological Society of America Abstracts with Programs*, 41(7): 141 (Portland OR, USA)

Carley TL, Miller CF, Wooden JL, Barth AP (2009) Using Zircon to Reconstruct the Magmatic History of Icelandic Rhyolite. *AGU EOS Transactions, Joint Assembly Supplement*, V51A-1661 (San Francisco, USA)

Miller CF, Wooden JL, Claiborne LL, Colombini LLS, **Carley TL**, Miller JS, Gualda GAR, Pamukcu AS (2009) Accessory minerals in volcanic sequences: Elucidating magma chamber processes and the linkage between plutons and volcanism. *GSA Abstracts with Programs*, 41(7): 707 (Portland OR, USA)

Carley TL, Nicolaysen KP, Spencer PK (2008) Mineralogical provenance of paleoflood deposits in the Walla Walla Valley, Washington. *Cordilleran Section GSA Abstracts with Programs* 40(1): 70 (Las Vegas, USA)

Carley TL, Sakimoto SEH (2007) Small volcanic vents as potential expressions of regional variations in the late-stage magmatic supply for the Tharsis Mons. *GSA Abstracts with Programs*, 39(6) 568 (Denver, USA)

Carley TL, Woertz JR, Sakimoto SEH (2006) Modeled impact of tsunami-induced seawater inundation on wetland microbial populations. *GSA Abstracts with Programs*, 38(7): 139 (Philadelphia, USA)

Sakimoto SEH, Hughes S, Schupack B, Jenkins M, **Carley T**, Gregg T (2006) Platy lava flows: Contributions of cooling and flow dynamics to surface plate morphologies. *GSA Abstracts with Programs*, 38(7): 308 (Philadelphia, USA)