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RESEARCH INTERESTS

Experimental Petrology; Magma Genesis; Volcano Science; Subduction Zones; Diffusion Chronometry; Magmatism on Exoplanets

EDUCATION

- 2011 Ph.D. in Geochemistry/Geology
Massachusetts Institute of Technology
- 2005 M.S. in Geological Sciences,
University of California, Santa Barbara
- 2004 B.S. in Geological Sciences,
University of California, Santa Barbara, Highest Honors

PROFESSIONAL EXPERIENCE

- Jan. 2014-present *Assistant Professor, School of Earth & Space Exploration
Honors Faculty, Barrett, the Honors College
Arizona State University*
- 2012-2013 *Mendenhall Postdoctoral Scholar, Volcano Science Center
US Geological Survey*
- 2012-2013 *Visiting Scholar, Dept. of Geological & Environmental Sciences
Stanford University*
- 2011 *Postdoctoral Associate, Dept. of Earth, Atmospheric and Planetary Sciences
Massachusetts Institute of Technology*
- 2006-2011 *Graduate Research Assistant, Dept. of Earth, Atmospheric and Planetary
Sciences Massachusetts Institute of Technology*
- 2006 *Post-MS Research Assistant, Dept. of Geological Sciences
UC Santa Barbara*
- 2005 *Forest Geologist, Los Padres National Forest
US Forest Service*

AWARDS, HONORS & FELLOWSHIPS

- 2019 Early Career Award, Geological Society of America, Mineralogy, Geochemistry, Volcanology & Petrology Division

2019-2020	American Geophysical Union, Volcanology, Geochemistry & Petrology Section Secretary (<i>elected</i>)
2016	NSF Faculty Early Career (CAREER) grant recipient (GEO)
2016	Kavli Fellow, National Academy of Sciences (<i>1 of 75 early career scientists from the US & China invited to explore new transdisciplinary approaches to frontier science problems</i>)
2014	AGU Trailblazer Award (<i>1st early career elected to AGU leadership 2008-2014</i>)
2012-2013	USGS Mendenhall Postdoctoral Fellowship
2010	AGU Outstanding Student Paper Award, Volcanology, Geochemistry, Petrology
2007-2010	NSF Graduate Research Fellowship
2007	AGU Outstanding Student Paper Award, Study of the Earth's Deep Interior
2006-2007	MIT Presidential Fellowship
2005	UCSB G.K. Gilbert Award (<i>best graduate student talk</i>)
2005	UCSB Teaching Assistant of the Year
2004	UCSB Outstanding Senior in Geological Sciences
2002-2003	UCSB Vice Chancellor of Research Undergraduate Research Grant
2003	UCSB Faculty Women's Scholarship
2002	UCSB Robert M. Norris Prize in Field Geology

GRANTS PRIOR TO ASU

2012-2013	USGS Mendenhall Postdoctoral Fellowship, \$205,210
2007-2010	National Science Foundation Graduate Research Fellowship
2002-2003	UC Santa Barbara Vice Chancellor of Research Undergraduate Research Grant

PEER-REVIEWED PUBLICATIONS

Key to Formatting: Till Graduate Advisee Till Undergraduate Advisee ‡Till Postdoctoral Advisee **Other Student Advisee

- 29) **Till, C.B.**, Vazquez, J.A., Stelten, M., **Shamloo, H.**, **Shaffer, J.**, Co-existing Discrete Bodies of Rhyolite and Punctuated Volcanism Characterize Yellowstone's Post-Lava Creek Tuff Caldera Evolution, *in review*, Geochemistry, Geophysics, Geosystems.
- 28) Grove, T.L., **Till, C.B.**, *in review*, H₂O-rich mantle melting near the slab-wedge interface, Contributions to Mineralogy and Petrology.
- 27) ‡**Iacovino, K.**, **Till, C.B.**, Experimentally-determined *f*O₂ of slab-derived fluids and oxidation of the sub-arc mantle, *in review*, Geology.
- 26) **Brugman, K.**, **Till, C.B.**, A Low-Aluminum Clinopyroxene-Liquid Geothermometer for High-Silica Magmatic Systems, *in review*, American Mineralogist.
- 25) **Shamloo, H.**, **Till, C.B.**, Decadal Transition from Quiescence to Supereruption; Petrologic Investigation of the Lava Creek Tuff, Yellowstone Caldera, WY, *in review*, Contributions to Mineralogy and Petrology.

24) **Perez, A.M.**, Desch, S., **Till, C.B.**, Schrader, D., *in revision*, An Experimental Investigation of the Planetary Embryo Bow Shock Model as a Chondrule Formation Mechanism, *Geochemica et Cosmochimica Acta*.

23) Edwards M.A., M.G. Jackson, A.R.C. Kylander-Clark, J. Harvey, G.A. Hagen-Peter, G.G.E. Seward, **C.B. Till**, J.V. Adams, J.M. Cottle, B.R. Hacker, F.J. Spera, *in press*, Beyond EM2: extreme enriched and heterogeneous $^{87}\text{Sr}/^{86}\text{Sr}$ ratios recorded in magmatic plagioclase from the Samoan hotspot.

22) **Till, C.B.**, Kent, A., Abers, G., Janiszewski, H., Gaherty, J., Pitcher, B., *in press*, Towards Assessing the Causes of Volcanic Diversity in the Cascades Arc, *Nature Communications*.

21) ‡**Iacovino, K.**, **Till, C.B.**, *in press*, DensityX: A program for calculating the densities of hydrous magmatic liquids from 427-1627 °C and up to 30 kbar, *Volcanica*.

2017

20) Cooper, K.M., **Till, C.B.**, Kent, A.J.R., Costa, F., Rubin, A.E., Gravley, D., Deering, C., Cole, J., Bose, M., 2017, Response to "Cold Storage in a Heat Wave?", *Science* (reply to comment), v. 358 (6370), p. 9145.

19) ****Rubin, A.E.**, Cooper, K.M., **Till, C.B.**, Kent, A.J.R., Costa, F., Gravley, D., Deering, C., Cole, J., Bose, M., 2017, Rapid cooling and cold storage in a silicic magma reservoir recorded in individual crystals, *Science*, v. 356, iss. 6343, p. 1154-1156, doi:10.1126/science.aam8720.

18) **Till, C.B.**, 2017, A Review & Update of Mantle Thermobarometry for Primitive Arc Magmas, *American Mineralogist* (invited paper), v. 102, p. 931-947, dx.doi.org/10.2138/am-2017-5783.

2015

17) **Till, C.B.**, Vazquez, J.A, Boyce, J.W., 2015, Months between rejuvenation and volcanic eruption at Yellowstone caldera, Wyoming, *Geology*, v.43, no. 8., p. 695-698, doi:10.1130/G36862.1.

16) Grove, T.L., **Till, C.B.**, 2015, Melting of the Earth's Upper Mantle, *Encyclopedia of Volcanoes*, Second Edition, Haraldur Sigurdsson, editor, p. 35-47.

---started at ASU January 2014---

2013

15) Grove, T.L., Holbig, E.S., Barr, J.A., **Till, C.B.**, Krawczynski, M.J., 2013, Melting of compositionally variable upper mantle in the garnet stability field: Distinguishing melts of lherzolite and pyroxenite source regions, *Contributions to Mineralogy and Petrology*, Vol. 166, No. 3, p.887-910, doi: 10.1007/s00410-013-0899-9.

14) **Till, C.B.**, Grove, T.L., Carlson, R.W., Donnelly-Nolan, J.M., Fouch, M.J., Wagner, L.S., Hart, W.K., 2013, Depths and Temperatures of Asthenospheric Melting and the Lithosphere-Asthenosphere Boundary in the southern Cascades Arc and Back-Arc, *Geochemistry, Geophysics, Geosystems*, doi:10.1002/ggge.20070.

2012

- 13) **Till, C.B.**, Grove, T.L., Withers, T., 2012, *Reply to 'Comment on "The beginnings of hydrous mantle wedge melting" by Till et al.'* by Stalder, *Contributions to Mineralogy and Petrology*, Vol. 164, No. 6, p.1073-1076, doi: 10.1007/s00410-012-0796-z.
- 12) **Till, C.B.**, Grove, T.L., Withers, T., 2012, *Reply to 'Comment on "The beginnings of hydrous mantle wedge melting" by Till et al.'* by Green, Rosethal and Kovacs, *Contributions to Mineralogy and Petrology*, Vol. 164, No. 6, p.1083-1085, doi: 10.1007/s00410-012-0803-z.
- 11) **Till, C.B.**, Grove, T.L., and Krawczynski, M.J., 2012, A melting model for variably depleted and enriched lherzolite in the plagioclase and spinel stability fields, *Journal of Geophysical Research (Solid Earth)*, Vol. 117, B06206, doi: 10.1029/2011JB009044.
- 10) Long, M.D., **Till, C.B.**, Druken, K.A., Carlson, R.W., Wagner, L.S., Fouch, M.J., James, D.E., Grove, T.L., Schmerr, N., Kincaid, C., 2012, Mantle dynamics beneath the Pacific Northwest and the generation of voluminous back-arc volcanism, *Geochemistry, Geophysics, Geosystems*, Vol. 13, No. 1, Q0AN01, doi: 10.1029/2012GC004189.
- 9) Grove, T.L., **Till, C.B.**, Krawczynski, M.J., 2012, The Role of H₂O in Subduction Zone Magmatism, *Annual Review of Earth and Planetary Sciences*, Vol. 40, p. 413-439, doi:10.1146/annurev-earth-042711-105310.
- 8) **Till, C.B.**, Grove, T.L., Withers, T., 2012, The Beginnings of Hydrous Mantle Wedge Melting, *Contributions to Mineralogy and Petrology*, Vol. 163, p. 669-688, doi: 10.1007/s00410-011-0692-6.

2010

- 7) **Till, C.B.**, Elkins-Tanton, L.T. and Fisher, K.M., 2010, Low Extent Melts at the Lithosphere-Asthenosphere Boundary, *Geochemistry, Geophysics, Geosystems*, Vol. 11, No. 10, doi:10.1029/2010GC003234.
- 6) Grove, T.L., **Till, C.B.**, Lev, E., Chatterjee, N. and Medard, E., 2010, *Reply to Global Systematics of Arc Volcano Position*, *Nature*, Vol. 468, p. E6-E8.

2009

- 5) Grove, T.L., **Till, C.B.**, Lev, E., Chatterjee, N. and Medard, E., 2009, Kinematic variables and water transport control the formation and location of arc volcanoes; *Nature*, Vol. 459, p.694-697.
- 4) **Till, C.B.**, Gans, P.B., and Spera, F.J., 2009, Perils of petrotectonic modeling: A view from southern Sonora Mexico; *J. Volcanology & Geothermal Research*, Vol. 186, p.160-168.

2008

- 3) Mariner, R.H., Minor, S.A., King, A.P., Boles, J.R., Kellog, K.S., Evans, W.C., Landis, G.A., Hunt, A.G. and **Till, C.B.**, 2008, A landslide in Tertiary marine shale with superheated fumaroles, Coast Ranges, California, *Geology*, Vol. 36, No. 12, p.959-962.
- 2) Hirschmann, M.M., Ghiorso, M.S., Davis, F.A., Gordon, S.M., Mukherjee, S., Grove, T.L., Krawczynski, M., Medard, E., and **Till, C.B.**, 2008, *Library of Experimental Phase Relations*

(LEPR): A database and web portal for experimental magmatic phase equilibria data; *Geochemistry, Geophysics, Geosystems*, Vol. 9, Article No. Q03011.

2007

1) Spera, F.J., Bohron, W.A., **Till, C.B.**, and Ghiorso, M.S., 2007, Partitioning of trace elements among coexisting crystals, melt and supercritical fluid during isobaric crystallization and melting; *American Mineralogist*, Vol. 92, p.1881-1898.

OTHER PUBLICATIONS (NON-PEER REVIEWED)

4) **Till, C.B.**, Pritchard, M.E., Miller, C.A., **Brugman, K.K.**, Ryan-Davis, J., 2018, Super-volcanic investigations, *Nature Geoscience (News & Views)*, v. 11, p. 227-229.

3) Anbar, A., **Till, C.B.**, Hannah, M., 2016, Upstairs, Downstairs: Building a Theory of Earth System Evolution, *Nature (Commentary)*, v. 539, p. 25-27, doi:10.1038/539025a.

2) **Till, C.B.**, 2015, Big Geochemistry, *Nature (News & Views)*, v. 532, p.292-294, doi:10.1038/523293a.

1) **Till, C.B.**, 2014, Big data and quantifying variability top scientific trends list, *Eos Trans. AGU*, Vol. 95, no. 50, p. 479, doi:10.1002/2014EO500008.

CONFERENCE PRESENTATIONS

60) **Till, C.B.**, Kent, A., Abers, G., Janiszewski, H., Gaherty, J., Pitcher, B., 2018 (*Invited Keynote*), Toward Assessing the Causes of Intra-Arc Diversity, Goldschmidt Conference, Boston.

59) **Iacovino, K., Till, C.B.**, 2018 (*Invited Keynote*) Can Slab Fluids Oxidize the Sub-Arc Mantle?, Goldschmidt Conference Boston.

58) Hartnett H, **Till C**, Anbar A, Glaser D, **Guild M**, **Iacovino, K.**, Johnson A, Leong J & Ostrander C, 2018, Solid-Earth Processes are Key Drivers in the Evolution of Earth's Redox State and Set the Stage for the Great Oxidation Event, Goldschmidt Conference, Boston, MA.

57) Bose M., **Till C.**, Floss C., 2018, Early solar system chronometry using presolar grains, Goldschmidt Conference, Boston.

56) **Shamloo, H., Till, C.**, 2018. Mg Diffusion in Alkali Feldspar; Applications for Diffusion Chronometry in Magmatic Systems, Goldschmidt Conference Boston, MA.

55) Bose, M., **C. B., Till**, and C. Floss, 2018, Chronometry Using Diffusion in Presolar Silicate Grains, Lunar & Planetary Science Conference, Woodlands, TX.

54) **Till, C.B.**, 2018 (*Invited Keynote*), A Petrologist's Eye View of Silicic Magmatic Systems, EOS AGU Chapman: Merging Geophysical, Petrochronologic, and Modeling Perspectives of Large Silicic Magma Systems Abstract P-28, Quinamávida, Maule Region, Chile.

53) **Brugman, K.K., Till, C.B.**, 2018. A Revised Low-Al Clinopyroxene-Liquid Geothermometer for High-Silica Igneous Systems. EOS AGU Chapman: Merging Geophysical, Petrochronologic,

and Modeling Perspectives of Large Silicic Magma Systems Abstract P-28, Quinamávida, Maule Region, Chile.

- 52) ***†Iacovino, K., Till, C.B.***, 2017, Fluid-mediated redox transfer in subduction zones: Measuring the intrinsic fO_2 of slab fluids in the lab, AGU Fall Meeting, New Orleans, LA.
- 51) ***Brugman, K.K., Till, C.B.***, 2017. A Revised Clinopyroxene-Liquid Geothermometer for Silicic Igneous Systems with Applications to Diffusion Chronometry of the Scaup Lake Rhyolite, Yellowstone Caldera, WY. EOS AGU Fall Meeting Abstract V11C-0365, New Orleans, LA.
- 50) ***Phillip, M., Till, C.B.***, 2017, Experimental Constraints on the Melting Behavior of an Mg-Rich Exoplanetary Mantle. AGU 2017. Abstract MR41C-0417, New Orleans, LA
- 49) ***Guild, M., Till, C.B.***, 2017. Developing a Hygrometer for Water-Undersaturated Lherzolite Melts, EOS AGU Fall Meeting Abstract V11B-0346, New Orleans, LA.
- 48) ***Till, C.B., Kent, A., Abers, G.***, 2017, Toward Assessing the Causes of Intra-Arc Diversity, A Cascades Perspective, AGU, New Orleans LA.
- 47) ***Till, C., Kent, A., Abers, G.***, 2017 (*Invited*), An interdisciplinary synthesis of mantle conditions, crustal storage and seismic velocities in the Southern-Central Cascades Arc, IAVCEI, Portland OR.
- 46) ***Till, C.***, 2017 (*Invited*), An Integrated Approach for Identifying P-T-X-t Histories and Eruption Triggers for Silicic Magmas; An Example Examining the Scaup Lake Rhyolite Yellowstone Caldera, WY, IAVCEI, Portland OR.
- 45) ***K. Brugman, C. Till***, 2017, Investigation of the Applicability of Clinopyroxene Geothermometers to Silicic Igneous Systems, IAVCEI, Portland OR.
- 44) ***H. Shamloo, C. Till***, 2017, Petrologic Insights into the Triggering Mechanism for the Lava Creek Tuff Super-Eruption, Yellowstone Caldera, WY, IAVCEI 2017, Portland OR.
- 43) ***Perez, A.M., Desch, S.J., Schrader, D.L., Till, C.B.***, 2017, Determining the Relative Timing of Formation of Chondrules vs. Planetary Embryos Through Experiments. First Billion Years Conference.
- 42) ***Perez, A.M., Desch, S.J., Schrader, D.L., Till, C.B.***, 2017, Can Porphyritic Chondrules Form in Planetary Embryo Bow Shocks? Chondrules Conference, British Columbia.
- 41) ***J. Shaffer, C. Till***, 2016, New Temperature and H₂O estimates for Post Caldera Yellowstone Rhyolite Lavas from Feldspar Geothermometry and Rhyolite-MELTS Modeling EOS AGU Fall Meeting.
- 40) ***H. Shamloo, C. Till***, 2016, Petrologic Insights into the Triggering Mechanism for the Lava Creek Tuff Super-Eruption, Yellowstone Caldera, WY, EOS AGU Fall Meeting.
- 39) ***K. Brugman, C. Till, M. Bose and R. Hervig***, 2016, Clinopyroxene Diffusion Chronometry of the Scaup Lake Rhyolite, Yellowstone Caldera, WY, EOS AGU Fall Meeting.

- 38) **C. Till**, J. Boyce, 2016, New Approaches for Identifying the P-T-X-t Histories and Eruption Triggers for Silicic Magmas; An Example Examining the Scaup Lake Rhyolite, Yellowstone Caldera, WY, EOS AGU Fall Meeting.
- 37) **Till, C.**, 2016 (*Invited*), A Review of Mantle Thermobarometry for Primitive Arc Magmas, Goldschmidt Conference, Yokohama, Japan, Abstract #3131.
- 36) **Guild, M., Till, C.**, Hervig, R., Wallis, S., 2016, Depth of Chlorite Formation: Quantitative Determination Using Boron Isotopes, Goldschmidt Conference, Yokohama, Japan, Abstract #1004
- 35) **C. Till**, J. Vazquez, J. Boyce, 2015 (*Invited*), Setting a Stopwatch for Post-Caldera Effusive Rhyolite Eruptions at Yellowstone caldera, Wyoming, EOS AGU Fall Meeting Abstract V31G-03.
- 34) **K. Brugman, C. Till**, M. Bose and R. Hervig, 2015, Development of Clinopyroxene as an Igneous Geospeedometer Using NanoSIMS, EOS AGU Fall Meeting Abstract V31B-3030.
- 33) **M. Guild, C. Till**, R. Hervig, S. Wallis, Boron Isotopic Compositions of High Pressure Hydrous Phases from the Slab-Mantle Wedge Interface, EOS AGU Fall Meeting Abstract V43A-3096.
- 32) **S. Cichy†, C. Till**, K. Roggensack, R. Hervig, A. Clarke, Experimental Evidence for Fast Lithium Diffusion and Isotope Fractionation in Water-bearing Rhyolitic Melts at Magmatic Conditions, EOS AGU Fall Meeting Abstract V43C-3167.
- 31) ****A. Rubin**, K. Cooper, A. Kent, F. Costa Rodriguez, **C. Till**, 2015, Constraining timescales of pre-eruptive events within large silicic volcanic centers, EOS AGU Fall Meeting Abstract V23F-01.
- 30) M. Coombs, J. Vazquez, L. Hayden, A. Calvert, M. Lidzbarski, N. Anderson, **C. Till**, 2015, Rejuvenation of shallow-crustal silicic magma bodies at Augustine and Hayes volcanoes, Alaska, EOS AGU Fall Meeting Abstract V42B-01.
- 29) **Till, C.B.**, 2015, Thermobarometric Constraints on Primitive Arc Magma Genesis: A Review, GeoPRISMS Theoretical & Experimental Institute on Subduction Zones, Redondo Beach, CA.
- 28) ****Tucker, K.**, Hervig, R., **Till, C.**, Wadhwa, M., D/H in nominally anhydrous phases in martian meteorites: implications for the martian mantle, Meteoritics & Planetary Science Vol. 50.
- 27) **Till, C.B., Guild, M.R.**, Grove, T.L., Carlson, R.W., 2014, (*Invited*) Evidence of Arc Magma Genesis in a Paleo-Mantle Wedge, the Higashi-akaishi Peridotite, Japan, EOS, AGU Fall Meeting Abstract V31G-07.
- 26) **Till, C.B.**, Boyce, J.W., 2014, Interrogating Commonly Applied Initial Condition Assumptions in Geospeedometry using NanoSIMS, EOS, AGU Fall Meeting Abstract V33A-4823.

- 25) Grove, T.L., **Till, C.B.**, 2014, Melting processes at the base of the mantle wedge: Melt compositions and melting reaction for the first melts of vapor-saturated lherzolite, EOS, AGU Fall Meeting Abstract DI21A-4257.
- 24) **Rubin, A.E.**, Cooper, K.M., Kent, A.J.R., Costa Rodriguez, F., **Till, C.B.**, 2014, Using Li Diffusion to Track Thermal Histories within Single Zircon Crystals, EOS, AGU Fall Meeting Abstract V31F-02.
- 23) **Till, C.B.**, Grove, T.L., Carlson, R.W., Wallis, S.R., Mizukami, T., 2014, (*Invited*) Insight into arc magma genesis from the Higashi-akaishi Peridotite, Japan, Goldschmidt Annual Conference, #4067.
- 22) **Till, C.B.**, Grove, T.L., Donnelly-Nolan, J.M., Carlson, R.W., 2013 (*Invited*), Depths and Temperatures of Mantle Melt Extraction in the Southern Cascadia Subduction Zone, EOS, AGU Fall Meeting Abstract S11C-07.
- 21) **Till, C.B.**, Vazquez, J.A., Boyce, J.W., Stelten, M., 2013, Probing the source and timing of rejuvenation and hybridization in post-caldera rhyolite magmas at Yellowstone Caldera, EOS, AGU Fall Meeting Abstract V53A-2763.
- 20) Grove, T.L., Holbig, E.S., Barr, J.A., **Till, C.B.**, Krawczynski, M.J., 2013, How to identify garnet lherzolite melts and distinguish them from pyroxenite melts, EOS, AGU Fall Meeting Abstract.
- 19) **Till, C.B.**, Matthews, N.E., Vazquez, J.A. (2013) Refining the Chronology of Intracaldera Magmatism Following the Formation of Yellowstone Caldera, GSA Abstracts with Programs, Vol. 45, No. 7, p. 895, Paper 405-8.
- 18) **Till, C.B.**, Grove T.L., 2012 (*Invited*), In Pursuit of Parental Arc Magmas: The effects of pressure on the composition of H₂O-saturated peridotite melts, EOS, AGU Fall Meeting.
- 17) **Till, C.B.**, Vazquez, J.A., Boyce, J.W., Hitzman, C., 2012, Quantifying the interval between rejuvenation and eruption of rhyolite at Yellowstone caldera using high-resolution NanoSIMS geospeedometry, EOS, AGU Fall Meeting.
- 16) **Till, C.B.**, Grove T.L., Krawczynski, M.J., 2011, A new melting model for variably metasomatized mantle and its implications for the generation of intraplate basalts in Oregon's High Lava Plains and the Modoc Plateau, CA, EOS, AGU Fall Meeting, Abstract T44D-06.
- 15) **Till, C.B.**, Grove, T.L., Carlson, R.W., Donnelly-Nolan, J.M., Fouch, M.J., Wagner, L.S., 2011, Shallow Anhydrous Asthenospheric Melting and the Location of the Lithosphere-Asthenosphere Boundary Below Southern Oregon and Northern California, Geological Society of America Abstracts with Programs, V. 43, No. 5, p. 90.
- 14) **Till, C.B.**, Grove, T.L., Carlson, R.W., Donnelly-Nolan, J.M., 2011 (*Invited*), Shallow anhydrous asthenospheric melting and the location of the lithosphere-asthenosphere boundary below southern Oregon and northern California, EarthScope Institute on the Lithosphere-Asthenosphere Boundary, Portland, OR.

- 13) **Till, C.B.**, Grove, T.L., 2010, Experimental Insights into the Subduction Filter, EOS, AGU Fall Meeting, Abstract V12B-04.
- 12) **Till, C.B.**, Grove, T.L., Carlson, R.W., 2010, Message from the Moho: Petrologic Clues to the Origin of Quaternary Basaltic Lavas from Oregon's High Lava Plains, Geologic Society of America Abstracts, V. 42, No. 5, p. 343.
- 11) **Till, C.B.**, Carlson, R.W., Grove, T.L., Wallis, S.R., Mizukami, T., 2009, A Missing Link in Understanding Mantle Wedge Melting, Higashi-akaishi Peridotite, Japan, EOS, AGU Fall Meeting, Abstract V44A-03.
- 10) M.J. Krawczynski, **Till, C.B.**, Barr, J.A., Grove, T.L., 2009, How much of the range in mantle potential temperatures is natural?, EOS, AGU Fall Meeting, Abstract V23B-2058.
- 9) **Till, C.B.**, Grove, T.L., 2008, New Observations on the Melting Behavior of H₂O-Saturated Mantle: Applications to Subduction Zones, EOS, AGU Fall Meeting Abstract V24B-08.
- 8) Elkins-Tanton, L.T., **Till, C.B.**, Fisher, K.M., 2008, Melt Could Create a Sharp Lithosphere-Asthenosphere Boundary Below Eastern North America, EOS, AGU Fall Meeting Abstract U43B-0066.
- 7) **Till, C.B.**, Grove, T.L., Withers A.C., Hirschmann, M.M., 2008 (*Invited*), Unlocking the Secrets of the Mantle Wedge: H₂O-Saturated Peridotite Melting Behavior to 5 GPa, AGU Chapman Conference and Fifth International Orogenic Lherzolite Conference, Mt. Shasta City, CA.
- 6) **Till, C.B.**, Grove, T.L., Withers, A., Hirschmann, M.M., Médard, E., and Chatterjee, N., 2007, Extending the Wet Mantle Solidus: Implications for H₂O Transport and Subduction Zone Melting Processes; EOS Transactions AGU Fall Meeting.
- 5) **Till, C.B.**, Gans, P.B., Spera, F.J., 2007, Wet Melting Prevails in Hot Subduction Zones; Evidence for the Oligo-Miocene Arc in southern Sonora, Mexico, State of the Arc Meeting, Termas de Puyehue, Chile.
- 4) De la Fuente, J., Chatoian, J., King, A.P., **Till, C.B.**, Miller, A.R., Taylor, R.G., 2005, Development of a landslide and debris flow hazard map for the Old and Grand Prix Fires: San Bernardino National Forests, GSA Abstracts with Programs, vol. 37, no. 7, p. 175.
- 3) **Till, C.B.**, Gans, P.B., and Spera F., 2005, From Subduction to Extension/Transtension: A Case Study in Transitional Geochemistry from Sonora, Mexico; GSA Abstracts with Programs, Vol. 37, No. 7, p. 19.
- 2) **Till, C.B.**, Gans, P.B., and Spera, F., 2005, The Tertiary Transition from "Subduction-Related" to "Rift- Related" Magmatism in Southern Sonora, Mexico: A Field, Petrologic, and Geochemical Study; GSA Abstracts with Programs, Vol. 34, No.4, p. 67.
- 1) MacMillan, J., Gans, P.B., and **Till, C.**, 2005, Tectonic Implications of the Volcanic and Structural History of the Sierra Santa Ursula, Sonora, Mexico; GSA Abstracts with Programs, Vol. 34, No. 4, p. 64.

STUDENT & POSTDOCTORAL SUPERVISION

I am currently the primary research mentor for 1 postdoc, 4 graduate students, and 4 graduate student second projects. Including my primary and secondary advisees, I am currently sitting on 20 graduate student committees.

ASU Postdoc Advisees

Oct 2016-Dec 2018 Dr. Kayla Iacovino, FESD Postdoctoral Fellow (*now at NASA JSC experimental lab*)

July 2014-June 2016 Dr. Sarah Cichy, SESE Exploration Postdoc, co-advised with A. Clarke & R. Hervig (*now at Potsdam*)

ASU Graduate Student Primary Advisees

1. Fall 2017-present Mitchell Phillips (PhD Student)
2. Fall 2015-present Hannah Shamloo (PhD Candidate)
3. Fall 2014-present Meghan Guild (PhD Candidate)
4. Fall 2014-present Kara Brugman (PhD Candidate)

ASU Graduate Student Second Project Advisees

1. Summer 2018-present Srinidhi Ravi (PhD Student) "*Investigation of the sources of lunar silicic constructs*"
2. Fall 2017-present Hannah Bercovici (PhD student) "*Volatile contents and timescales of magmatic processes recorded in Icelandic basalts*"
3. Spring 2017-Fall 2018 Chadlin Ostrander (PhD Candidate) "*Experimental investigation of Li diffusion in volcanic zircon*" (Spring 2017-present)
4. Fall 2015-present Aleisha Johnson (PhD Candidate) "*Effect of H₂O on major element partitioning during crystallization of hydrous basalts and applications to Aleutian basalts*"
5. Spring 2015-Spring 2016 Crystylynda Fudge (PhD Candidate) "*Petrogenesis of Shodo-Shima primitive magnesian andesites, Japan*"

ASU Graduate Student Thesis Committee Membership (excluding Advisees)

At Present:

1. Jim Crowell (SESE, PhD student), started Fall 2015
2. Tucker Ely (SESE, PhD candidate), started Fall 2014
3. Anna Brunner (SESE, PhD candidate), started Fall 2014
4. Alyssa Anderson (SESE, PhD candidate), started Fall 2014
5. Shule Yu (SESE, PhD candidate), started Fall 2014
6. Huawei Chen (SESE, PhD candidate), started Spring 2014
7. Hong Yu Lai (SESE, PhD candidate), started Fall 2013
8. James Leong (SESE, PhD candidate), started Fall 2013
9. Joey Romero (SESE, MS candidate), started Fall 2017
10. Soumya Ray (SESE, PhD candidate), started Fall 2016
11. Crystylynda Fudge (SESE, PhD candidate), started Fall 2014

Graduated:

1. Mary Schultz (SESE, PhD candidate), Graduated Summer 2017, now AAAS Policy Fellow
2. Margo Regier (SESE, MS), Graduated Spring 2016, now PhD student UBC
3. Kera Tucker (SESE, MS), Graduated Spring 2015

4. Chelsea Allison (SESE, PhD) Graduated Spring 2018, now postdoc Cornell University
5. Danika Wellington (SESE, PhD) Graduated Summer 2018, now postdoc ASU
6. Alexandra Reyes (SESE, MS), Graduated Spring 2018, co-advised with S. Desch (SESE)

ASU Undergraduate Research Advisees

1. Spring 2017-2018 Andrés Aldana
2. Fall 2016-present Kelly Vote (*Recipient CLAS Research Scholarship Summer 2017-present*)
3. Dec 2015-May 2017 Mitchell Phillips (*Recipient CLAS Research Scholarship 2016- 2017*)
4. May 2014-Aug 2016 Eric Escoto (*Recipient 2016 CLAS Dean's Medal & 2015 R. Greeley Scholarship*)
5. May 2014-Aug 2016 Jamie Shaffer (*now MS Student New Mexico State*)
6. May 2014-May 2015 Katherine Sheppard (*Recipient CLAS Dean's Medal & ASU Outstanding Graduate*) *Barrett Honors Thesis: "Modeling the Mantle Genesis of Basalts from Lassen Volcano"*

TEACHING HISTORY

Professor of Record

- | | |
|---|---|
| Spring 2016 | GLG 101: Introduction to Geology (in-person)
<i>Introductory general education class teaching basic principles of geology, geochemistry, and geophysics.</i>
Enrollment: 220 Students |
| Fall 2015,
Spring 2017,
Spring 2019 | SES 494/598: Science Communication (co-taught w R. Hervig F '15)
<i>Primarily a graduate course (2-3 ugrads enrolled) to teach and practice primary skills in effective oral and written science communication to both specialized and general audiences. Course includes significant writing & oral communication practice.</i>
Av. Enrollment: 25 |
| Spring 2015 | GLG 494/598: Subduction Zones
<i>Undergraduate & graduate course covering the physics and chemistry of geologic processes occurring in subduction zones from the subducting plate to the surface. Course work includes weekly reading of journal articles, presentations and final research projects.</i>
Enrollment: 35 |
| Fall 2014, 2015, 2016,
2017, 2018 | GLG 424: Petrology (co-taught with R. Hervig in F '14 & F '15)
<i>Undergraduate course (2-3 graduate students enrolled per year) course covering the origin of igneous and metamorphic rocks. Upper division core curriculum in the geosciences track within the BS in the School of Earth & Space Exploration.</i>
Av. Enrollment: 30 |

Participated as Lecturer

- Spring 2016 THP/HAD 494/598: Animating Research
One of five featured professors who worked with Herberger students to use art to animate our research. Included weekly engagement and mentoring of the students.
Enrollment: 25
- Fall 2014 SES 494/598: Archean Geophysics
Graduate course in the history of the early Earth. I attended weekly and delivered lectures on the origin of the Earth's continental crust & upper mantle magma genesis.
Enrollment: 25
- Fall 2015, 2015 GLG 591: Faculty Research Seminar
Presented lecture on the research my group conducts as part of an introductory graduate class.
- Jan. 2014, 2015, 2016 ASU Workshop on Secondary Ion Mass Spectrometry
Week long workshop held by the NSF-supported SIMS Facility at Arizona State University, which includes training on the Cameca 6f and NanoSIMS 50L including: 1) how the secondary ion mass spectrometer (ion microprobe) removes atoms from a sample and transmits ions to detectors, 2) converting the signal into concentrations or isotope ratios, 3) hardware inside the SIMS, 4) practical information on sample preparation and data analysis, 5) examples of applying SIMS to a wide range of geological problems. Fills up within 1 hour of advertisement every year.
Enrollment: 15

INVITED TALKS & COLLOQUIA

- March 2019 University of Wisconsin, Geology Seminar
- January 2019 Universidad Nacional de Colombia, Sede Medellín, EGEO Seminar
- December 2018 American Geophysical Union Fall Meeting
- October 2018 University of Nevada, Reno, Geological Sciences Colloquium
- September 2018 University of Tennessee, Dept. of Earth & Environmental Science Seminar
- August 2018 Goldschmidt Conference, Boston MA
- May 2018 Stanford University, Dept. Geological & Enviro. Science Colloquium
- January 2018 Keynote - Chapman Conference on Large Silicic Magmatic Systems, Chile
- January 2018 Oregon State University, Geology Seminar
- December 2018 Keynote – CIDER workshop at American Geophysical Union Fall Mtg
- August 2017 IAVCEI 2017, Portland OR (2 invited talks)
- May 2017 University of Wyoming, Geological Sciences Seminar
- April 2017 US Geological Survey, Denver CO
- April 2017 ASU, School of Earth & Space Exploration Colloquium
- November 2016 University of Washington, Earth & Space Sciences Seminar
- November 2016 University of Oregon, Dept. of Earth Sciences Seminar

October 2016	Subduction Zone Observatory Planning Meeting
July 2016	Goldschmidt Conference, Japan
July 2016	Kanazawa University, Geosciences Seminar, Japan
January 2016	SESE New Discoveries Public Lecture
December 2015	American Geophysical Union Fall Meeting
November 2015	New Mexico State, Geological Sciences Seminar
October 2015	GeoPRISMS Experimental & Theoretical Institute on Subduction Zones
December 2014	American Geophysical Union Fall Meeting
November 2014	University of Arizona, Dept. of Geosciences Colloquium
August 2014	Goldschmidt Meeting, California
January 2014	American Geophysical Union Editors & Chiefs Meeting
December 2013	American Geophysical Union Fall Meeting
September 2013	Rice University, Dept. of Earth Science Seminar
September 2013	US Geological Survey, Reston VA, Mendenhall Fellows Seminar
April 2013	Lawrence Berkeley National Lab/UC Berkeley Geology Seminar
March 2013	Stanford University, Dept. Geological & Enviro. Science Colloquium
February 2013	UC Santa Cruz, Whole Earth Seminar
February 2013	Arizona State University, School of Earth & Space Exploration Seminar
February 2013	Washington State University, Earth & Planetary Sciences Seminar
January 2013	UC Santa Barbara, Earth Sciences Seminar
January 2013	Boise State University, Dept. Geosciences Seminar
December 2012	American Geophysical Union Fall Meeting
October 2012	UC Davis, Earth Sciences Seminar
September 2012	UC Santa Cruz, Whole Earth Seminar
May 2012	UC Los Angeles, Dept. Earth & Space Sciences Seminar
May 2012	Soc. of Scientific, Technical & Medical Publishers Annual Meeting
April 2012	San Jose State University, Geology Seminar
April 2012	Washington University, St. Louis, Dept. Earth & Planetary Sci. Seminar
February 2012	Boise State University, Dept. Geosciences Seminar
February 2012	US Geological Survey, Menlo Park, Volcano Science Center Seminar
October 2011	EarthScope Institute on Lithosphere-Asthenosphere Boundary
April 2011	US Geological Survey, Anchorage, AK
March 2011	Bryn Mawr College, Dept. Geological Sciences Seminar
October 2010	Middlebury College, Dept. Geology Seminar
September 2008	Am. Geophysical Union Chapman Conf./5th Int'l Lherzolite Conf.

PROFESSIONAL SERVICE

I. Service to Arizona State University

Fall 2017	Selected to deliver one of nine ASU KED Talks for 2017-2018
Winter 2016	SESE Faculty Search Committee, Geophysics
Winter 2016	SESE Exploration Postdoctoral Fellowship Search Committee
Nov. 2016	KED Research Academy, Talk: Behind the Scenes of a Successful NSF Proposal
Aug. 2015	Presentation on SESE to ASU undergraduate recruiters

- 2014-present SESE Safety Committee
- 2015-present SESE Postdoc Development/Workshops for Success Organization Committee
- 2014-present ASU SIMS/NanoSIMS Facility Oversight Committee
- 2014-present ASU SMS-SESE High Pressure Experimental Facilities Oversight Committee

II. Service to Professional Societies and Organizations

- 2019-present American Geophysical Union, Volcanology, Geochemistry and Petrology Secretary (*elected*)
- 2018-2020 SZ4D Research Coordination Network, Advisory Board (to propose new NSF program focused on subduction zone hazard-related science)
- 2015-2018 American Geophysical Union Volcanology, Geochemistry and Petrology Medals Nomination Committee
- 2014 Chair, American Geophysical Union Scientific Trends Task Force
- 2013-2014 American Geophysical Union Board of Directors (*elected, 1st early career member to hold position in history of organization*)
- 2013-2014 Vice Chair of American Geophysical Union Council (*elected, 1st early career member to hold position in history of organization*)
- 2012-2014 AGU Council Leadership Team (*elected*)
- 2010-2014 American Geophysical Union Council (governing body), two successive terms (*elected*)
- 2010-2012 American Geophysical Union Rep. to the American Geosciences Institute (AGI)
- 2008-2010 American Geophysical Union Comm. on Education & Human Resources
- 2008-2010 Primary Student Representative to the American Geophysical Union

III. Editorial

- 2017-present Assistant Editor, American Mineralogist
- 2014-present Editorial Board, Review Editor, Frontiers in Volcanology
- 2004-present Manuscript reviewer for Nature • Science • Geology • Earth and Planetary Science Letters • Journal of Petrology • Geochemistry Geophysics Geosystems • American Mineralogist • Contributions to Mineralogy and Petrology • Chemical Geology • Journal of Volcanology and Geochemical Research • Lithos • Frontiers in Volcanology

IV. Grant Proposal and Panel Service

- 2017 Panelist, National Science Foundation, Studies of the Earth's Deep Interior Panel
- 2016 Panelist, National Science Foundation, EAR - Petrology & Geochemistry Review Panel
- 2014 Panelist, NASA, Solar System Workings Review Panel
- 2006-present Proposal reviewer for National Science Foundation (NSF) EAR-Petrology & Geochemistry • NSF EAR-CAREER • NSF EAR-EarthScope • NSF-EAR GeoPRISMS • NSF OCE-Marine Geology & Geophysics • NASA Solar Systems • NASA Emerging Worlds • NERC

V. Activities at Scientific Meetings

- 2012-present Outstanding Student Paper Judge, American Geophysical Union Fall Meeting

- 2018-2021 Advisory Board, SZ4D NSF Research Coordination Network
- 2018-2021 Co-I, Community Response to Volcanic Eruptions NSF Research Coordination Network
- 2018 Scientific Session Organizer (3 sessions), Goldschmidt 2018, Boston
- 2018 Division Scientific Organizing Committee, Goldschmidt 2018, Boston
- 2017 Co-Organizer, Cooperative Institute for Dynamic Earth Research (CIDER) Summer Workshop on Subduction Zone Structure & Dynamics, UC Berkeley, CA
- 2016 Invited Participant & Speaker, Subduction Observatory Planning Meeting, Boise ID
- 2016 Science Organizing Committee, NSF/NASA Workshop Without Walls on Planetary Habitability, Tempe Arizona
- 2015 Convener (3 sessions), American Geophysical Union Fall Meeting, San Francisco CA: *"1) Chemistry of the Earth's Mantle; 2) A Tangled Web? Generation and Transport of Fluids, Volatiles and Melts in Subduction Zones from Source to Surface; 3) Transport of Volatiles from Mantle to Surface: Insights on Diffusion, Exsolution and Migration of Fluids in Magmatic Environments from Natural Samples and Experiments"*
- 2015 Invited Participant, GeoPRISMS Experimental & Theoretical Institute on Subduction Zones, San Diego, CA
- 2015 Invited Participant, Diffusion Workshop, Bochum University, Germany
- 2014 Convener (2 sessions), American Geophysical Union Fall Meeting, San Francisco, CA: *"1) Accelerated and Punctuated: Using Geochronology, Diffusion Modeling, and Numerical Models to Understand Magmatic Processes; 2) Upstairs Downstairs: Consequences of Internal Evolution for the Habitability of Planetary Surfaces"*
- 2014 Convener, Goldschmidt Conference, Sacramento, CA *"Geologic and Geochemical Processes at the Plate Interface"*
- 2013 Convener, American Geophysical Union Fall Meeting, San Francisco CA: *"The Detection and Migration of Melt and Volatiles in the Earth's Interior"*
- 2011 Invited Participant & Speaker, NSF GeoPRISMS Experimental & Theoretical Institute on the Lithosphere-Asthenosphere Boundary, Portland OR
- 2011 GeoPRISMS Alaska Primary Site Planning Meeting, Portland OR
- 2010 MARGINS Successor Planning Workshop
- 2009 Convener, American Geophysical Union Fall Meeting, San Francisco CA, *"Mantle Potential Temperature: A Very Hot Topic"*
- 2005 Session Chair, Geological Society of America Annual Meeting, Salt Lake City UT *"Tectonics"*

VI. Public Engagement

- 2018 **ASU KED Talk** – one of eight professors from ASU chosen to film an ASU KED Talk in 2018 on my research and path to being a professor. Available here: <https://research.asu.edu/kedtalks>
- 2014, 2015, 2016 **Earth & Space Exploration (ESE) Day** - Open SESE labs to the general public on a weekend day. EPIC lab hosts a series of activities regarding studying the Earth's

interior, including making your own rock in a simplified version of our high pressure apparatus, make your own lava lamp and exploring the mantle.

- 2014, 2015, 2016 **ASU Night of the Open Door** - Open ASU to the general public on a weekend evening. EPIC lab hosts a series of activities regarding similar to ESE Day.
- 2016 **SESE New Discoveries Public Lecture** - *"When will the Yellowstone supervolcano erupt again?"* Evening public lecture to an audience of over two hundred.
- 2016 **Desert Mountain Speaker Series, AZ** - *"When will the Yellowstone supervolcano erupt again?"* Evening public lecture to an audience of over two hundred.
- 2010 **MIT 150th Anniversary Open House** - created and lead exhibit on geologic history of Massachusetts

VII. Selected Press Coverage & Media

- Nov 2017 Appeared on [AZ PBS "Horizon" to discuss Yellowstone Research](#)
- Oct 2017 Appeared on [12 News "Sunday Square Off" to discuss Yellowstone Research](#)
- Oct 2017 [New York Times article on our research](#) & associated coverage ([Snopes](#), [Time](#), [USA Today](#), [Newsweek](#), [Fox News](#))
- June 2017 Interviewed on Arizona's KJZZ 'The Show', ["What if Scientists Could Better Predict When A Volcano Might Erupt?"](#)
- Dec. 2016 AGU [EOS article on our work at Yellowstone](#)
- August, 2016 Featured in ASU Now video: *"ASU professors' words of wisdom"*
- Jan., 2016 Interviewed on KTAR 92.3 News Radio, Phoenix AZ about Yellowstone volcano
- Nov., 2015 Featured in ASU Connections Podcast
- July, 2015 *"For smaller eruptions, Yellowstone can wake up quickly"* ArsTechnica.com article on Till et al., 2015
- July, 2015 *"Geologists are setting a Stopwatch for a Yellowstone Eruption,"* Serious-Science.org article on Till et al., 2015
- July, 2015 *"Creating a stopwatch for volcanic eruptions"*, Phys.org article on Till et al., 2015
- July, 2015 *"Potential for future eruptions at Yellowstone volcano"*, ScienceDaily.com article on Till et al., 2015
- July, 2015 *"ASU professor strives to better understand the potential for future eruptions at Yellowstone volcano by studying those in the recent past"* AAAS Eurkalert.org article on Till et al., 2015
- July, 2015 *"Recharging A magma chamber,"* the-earth-story.com article on Till et al., 2015
- Spring, 2015 *"No Small Feat"* TechConnect Magazine, article about ASU NanoSIMS facility
- April, 2015 *"UA, ASU teams to search for alien life"*, interviewed in Arizona Daily article about NExSS grant
- March, 2015 *"A (Brief) Tour of Exciting Topics in Experimental Petrology,"* co-authored American Geophysical Union Volcanology Geochemistry and Petrology Education and Outreach Spotlight article

VIII. Activities Supporting Women in STEM

2014-present Sundial Summer Bridge Program Faculty Participant (*program to entrain and retain under-presented minorities in STEM majors at ASU*)

2014-present SESE Women in Planetary Sciences Chapter, Faculty Advisor

Jan. 2016 American Women in Science Jump Starting STEM Careers Panel

IX. Professional Society Membership (year joined in parentheses)

Geological Society of America (2003) • American Geophysical Union (2005) • Mineralogical Society of America (2006) • Earth Science Women's Network (2010) • National Association of Geoscience Teachers (2013) • Geochemical Society (2014)

OTHER EXPERIENCE

My first career was in ballet. I was employed full-time as a professional ballet dancer for five years in two world-renowned companies (Pennsylvania Ballet & Fort Worth Dallas Ballet (now Texas Ballet Theater) after studying ballet at the School of American Ballet at Lincoln Center in New York City and Ballet Workshop of New England. As a ballet dancer, I received several distinctions including, a Honorable Mention in the Presidential Arts Competition and an invitation to participate in Exploring Ballet with Suzanne Farrell at the Kennedy Center in Washington D.C..