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## EDUCATION

**University of Arizona** | Tucson, Arizona

**Ph.D.** 2016 **Geosciences**  
**M.S.** 2010 **Geosciences**

**Carleton College** | Northfield, Minnesota

**B.A.** 2007 **Geology**, with distinction, *magna cum laude*  
**Environmental and Technology Studies**, concentration

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## PROFESSIONAL EXPERIENCE

<b>Assistant Professor</b>   Idaho State University Dept. of Geosciences	2019-present
<b>Visiting Assistant Professor</b>   Hamilton College Geosciences Department	2018-2019
<b>Postdoctoral Research Fellow</b>   Univ. of Michigan Dept. of Earth and Envi. Sciences	2016-2018
<b>Graduate Research/Teaching Assistant</b>   Univ. of Arizona Dept. of Geosciences	2008-2016
<b>Graduate Research Fellow</b>   National Science Foundation	2009-2014
<b>Geoscience Intern</b>   ExxonMobil Exploration Company, Houston, Texas	2013
<b>Lab Manager</b>   Barbeau Tectonics & Sedimentation Lab, Univ. of South Carolina	2008
<b>Field Geologist</b>   U.S. Antarctic Program & Univ. of South Carolina	2007-08
<b>Alumni Teaching Assistant</b>   Carleton College Geology Field Seminar in Italy	2007
<b>Student Assistant</b>   Science Education Resource Center, Carleton College	2003-2007

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## PUBLICATIONS—articles in peer-reviewed journals

**Murray, K.E.**, Reiners, P.W., Thomson, S.N., Robert, X., and Whipple, K.X., 2019, The thermochronologic record of erosion and magmatism in the Canyonlands region of the Colorado Plateau, *American Journal of Science*, vol. 319, no. 5, p. 339-380. doi: 10.2475/05.2019.01.

Karlstrom, L. **Murray, K.E.**, and Reiners, P.W., 2019, Bayesian Markov-Chain Monte Carlo inversion of low-temperature thermochronology around two 8-10 m wide Columbia River Flood Basalt dikes, *Frontiers in Earth Science*, vol. 7, no. 90, doi.org/10.3389/feart.2019.00090.

**Murray, K.E.**, Braun, J, and Reiners, P.W., 2018, Toward robust interpretation of low-temperature thermochronometers in magmatic terranes, *Geochemistry, Geophysics, Geosystems*, doi: 10.1029/2018GC007595

Bloch, E., Ibañez-Mejia, M., **Murray, K.E.**, Vervoort, J., and Müntener, O., 2017, Recent crustal foundering in the Northern Volcanic Zone of the Andean Arc: Petrological insights from the roots of a modern subduction zone, *Earth and Planetary Science Letters*, v. 476, p. 47-58.

**Murray, K.E.**, Reiners, P.W., Thomson, S.N., 2016, Rapid Pliocene-Pleistocene erosion of the central Colorado Plateau documented by apatite thermochronology from the Henry Mountains, *Geology*. v. 44, no. 6, p. 483-486, doi:10.1130/G37733.1.

Loope, D., Kettler, R., **Murray, K.E.**, Pederson, J., and Reiners, P., 2016, Sandstones and Utah's canyon country: Deposition, diagenesis, exhumation, and landscape evolution, in Keller, S.M. and Morgan, M.L., eds., *Unfolding the Geology of the West: Geological Society of America Field Guide 44*, p. 41-71, doi:10.1130/2016.0044(02).

- Murray, K.E.**, Ducea, M.N., Schoenbohm, L., 2015, Foundering-driven lithospheric melting: the source of central Andean mafic lavas on the Puna plateau (22°S - 27°S), in DeCelles, P.G., Ducea, M.N., Carrapa, B., and Kapp, P.A., eds., *Geodynamics of a Cordilleran Orogenic System: The Central Andes of Argentina and Northern Chile*: Geological Society of America Memoir 212, p. 139–166, doi:10.1130/2015.1212(08)
- Quade, J., Dettinger, M.P., Carrapa, B., DeCelles, P.G., **Murray, K.E.**, Huntington, K.A., Cartwright, A., Canavan, R., Gehrels, G., Clementz, M., 2015, Growth of the central Andes, 22°S - 26°S, in DeCelles, P.G., Ducea, M.N., Carrapa, B., and Kapp, P.A., eds., *Geodynamics of a Cordilleran Orogenic System: The Central Andes of Argentina and Northern Chile*: Geological Society of America Memoir 212. doi:10.1130/2015.1212(15)
- Reiners, P.W., Thomson, S.N., Vernon, A., Willett, S.D., Zattin, M., Einhorn, J., Gehrels, G., Quade, J., Pearson, D., **Murray, K.E.**, Cavazza, W., 2015, Low-temperature thermochronologic trends across the central Andes, 21°S - 28°S, in DeCelles, P.G., Ducea, M.N., Carrapa, B., and Kapp, P.A., eds., *Geodynamics of a Cordilleran Orogenic System: The Central Andes of Argentina and Northern Chile*: Geological Society of America Memoir 212. doi:10.1130/2015.1212(12)
- Murray, K.E.**, Orme, D.A., Reiners, P.W., 2014, Effects of U-Th-rich grain boundary phases on apatite helium ages. *Chemical Geology*. v. 390, p. 135-151, doi:10.1016/j.chemgeo.2014.09.023
- Braun, J., Simon-Labric, T., **Murray, K.E.**, and Reiners, P.W., 2014, Topographic relief driven by variations in surface rock density: *Nature Geoscience*, v. 7, p. 534–540, doi: 10.1038/ngeo2171.
- Simon-Labric, T., Brocard, G.Y., Reiners, P.W., van der Beek, P.A., Teyssier, C., Shuster, D.L., **Murray, K.E.**, Whitney, D.L., 2014, Low-temperature thermochronologic signature of range-divide migration and breaching in the North Cascades: *Lithosphere*. doi:10.1130/L382.1
- Ducea, M.N., Seclaman, A.C., **Murray, K.E.**, Jianu, D., Schoenbohm, L.M., 2013, Mantle-drip magmatism beneath the Altiplano-Puna plateau, central Andes: *Geology*, v. 41, no. 8, p. 915-918, doi: 10.1130/G34509.1
- Quade, J., Reiners, P., Placzek, C., Matmon, A., Pepper, M., Ojha, L., and **Murray, K.E.**, 2012, Seismicity and the strange rubbing boulders of the Atacama Desert, northern Chile: *Geology*, v. 40, no. 9, p. 851–854, doi: 10.1130/G33162.
- Lackey, J.S., Erdmann, S., Hark, J.S., Nowak, R.M., **Murray, K.E.**, Clarke, D.B., and Valley, J.W., 2011, Tracing garnet origins in granitoid rocks by oxygen isotope analysis: Examples from the South Mountain batholith, Nova Scotia: *The Canadian Mineralogist*, v. 49, p. 417-439.
- Barbeau, D.L., Davis, J., **Murray, K.E.**, Valencia, V., Gehrels, G.E., Zahid, K.M., Gombosi, D.J., 2009, Detrital-zircon geochronology of the metasedimentary rocks of northwestern Graham Land: *Antarctic Science*, v. 22, n. 1, p. 65-78.
- Barbeau, D.L., Olivero, E.B., Swanson-Hysell, N.L., Zahid, K.M., **Murray, K.E.**, Gehrels, G.E., 2009, Detrital-zircon geochronology of the eastern Magallanes foreland basin: Implications for Eocene kinematics of the northern Scotia Arc and Drake Passage: *Earth and Planetary Science Letters*, v. 284, p. 489-503.

— in preparation & review, available upon request —

- Murray, K.E.**, Clark, M.K., Niemi, N.A., *in review*, Rocky Mountains ride high on ancient rifted margin, *Geology*.

**PUBLICATIONS—selected conference abstracts** (\*=undergraduate student, \*\*=graduate student)

- Murray, K.E.**, Clark, M.K., Niemi, N.A., 2019, Rocky Mountains ride high on ancient rifted margin, GSA Annual Meeting, Phoenix, AZ.
- Kennedy, S.\*, Portenga, E.W., **Murray, K.E.**, Bhattarai, S.\*\*, 2019, Exploring a possible link between trackless zircons and regional volcanism in northern Australia, GSA Annual Meeting, Phoenix, AZ.

- Murray, K.E.**, Clark, M.K., Niemi, N.A., 2018, Rodinia rifting tied to the birth of the Rocky Mountain Front Range, GSA Annual Meeting, Indianapolis, IN, Nov. 4-7. (invited).
- Murray, K.E.**, Clark, M., Niemi, N., Quackenbush, P.\*\*, West, J., Medwedeff, W.\*\*, Chamlagain, D., 2018, Focused Pulse of Rapid Erosion in Central Nepal Related to Himalayan Fault Motion, AGU Fall Meeting, Washington, D.C., Dec 10-14. (talk)
- Murray, K.E.** and Niemi, N.A., 2018, Rapid stepped-heating experimental method for routine monazite (U-Th-Sm)/He thermochronology, GSA Annual Meeting, Indianapolis, IN, Nov. 4-7.
- Portenga, E.W., **Murray, K.E.**, Bhattarai, S.\*\*, Bird, M.I., Corbett, L.B., Bierman, P.R., Caffee, M.C., Thomson, S.N., Fu, X., Li, B., 2018, Investigating landscape response to human arrival to Australia and anthropogenic fire using cosmogenic isotopes and low-temperature thermochronometers, GSA Annual Meeting, Indianapolis, IN, Nov. 4-7.
- Clark, M., **Murray, K.E.**, Quackenbush, P.\*\*, West, J., Medwedeff, W.\*\*, Zekkos, D., Niemi, N., Chamlagain, D., 2018, Landscape response to transient extreme erosion rates, AGU Fall Meeting, Washington, D.C., Dec 10-14. (talk)
- Murray, K.E.**, Reiners, P.W., Braun, J., Karlstrom, L., Morriss, M.\*\*, 2017, Beating the Heat: Magmatism in the Low-Temperature Thermochronologic Record, Abstract 258788, AGU Fall Meeting, New Orleans, La, Dec 11-15 (invited talk).
- Morriss, M.\*\*, Karlstrom, L., Nasholds, M., **Murray, K.**, 2017, Constraints on the structural and thermal conditions of Columbia River Basalt feeder dikes from a comprehensive regional dataset, Abstract ME23C-073, presented at the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI) Scientific Assembly, Portland, OR, 14-18 August.
- Ibanez-Mejia, M., Block, E., **Murray, K.E.**, Vervoort, J.D., Müntener, O., 2017, A Quaternary xenolith record of lower-crustal pyroxenite formation and foundering in the Andean arc, Goldschmidt, Paris, France, Aug 13-18.

## TEACHING

<b>Assistant Professor</b>   Idaho State University Department of Geosciences	2019-present
<b>Earth Materials I</b>   Fall 2019	
<b>Advanced Physical Geology (co-taught)</b>   Fall 2019	
<b>Earth Materials II</b>   Spring 2020	
<b>Visiting Assistant Professor</b>   Hamilton College Geosciences Department	2018-2019
<b>Principles of Geoscience: Geologic Hazards</b>   Fall 2018	
<b>MATLAB® for the Earth and Environmental Sciences</b>   Spring 2019	
<b>Sedimentology and Stratigraphy</b>   Spring 2019	
<b>Graduate Teaching Assistant</b>   UA Department of Geosciences	2008-2015
<i>Taught and graded weekly labs, including classroom lecture and field exercises</i>	
<b>Structural Geology</b>   (2013) instructor: George Davis	
<b>Sedimentology and Stratigraphy</b>   (2008, 2009, 2015) instructor: Andy Cohen or George Gehrels	
<b>Alumni Teaching Assistant</b>   Carleton College & Osservatorio Geologico di Coldigioco	2007
<i>Updated curriculum, taught field methods, graded, and provided logistical support for 10-week Geology Field Seminar in Italy.</i>	
<b>Laboratory Teaching Assistant</b>   Carleton College Geology Department	2006-2007
<b>Petrology, Structural Geology, Introduction to Geology</b>	

## RESEARCH FELLOWSHIPS, SCHOLARSHIPS, & GRANTS

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<b>Graduate Research Fellowship Program</b>   National Science Foundation (\$92,000)	2009-14
<b>P.E.O. Scholar Award</b>   International Chapter of the P.E.O. Sisterhood (\$15,000)	2013-14
<b>Chevron-Texaco geology grant</b>   UA Department of Geosciences ( \$1,600)	2012
<b>Prentice Scholar</b>   Achievement Rewards for College Scientists, Phoenix Chapter (\$21,000)	2009-12
<b>Graduate Student Research Grant</b>   Geological Society of America (\$1,938)	2011

## SERVICE—professional

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<b>NSF ad-hoc Reviewer</b>   Tectonics, Antarctic Earth Sciences	since 2017
<b>Reviewer</b>   <i>Tectonics, Geology, G-cubed, Chemical Geology, JGR-Earth Surface, Gondwana Research</i>	since 2016
<b>Geosciences Department Representative</b>   UA College of Science Graduate Council	2009-2014
<b>EarthWeek Conference Committee</b>   UA School of Earth & Environmental Science <i>Chair, EarthWeek 2013</i> <i>Geosciences representative &amp; program editor, EarthWeek 2012</i>	2011-2013
<b>GeoDaze Symposium</b>   UA Department of Geosciences <i>Co-chair, 40th Annual GeoDaze (2012)</i> <i>Treasurer, 38th Annual GeoDaze (2010)</i> <i>Publications co-chair, 37th Annual GeoDaze (2009)</i>	2008-2012
<b>organizer</b> , weekly “brown bag” seminar   UA Department of Geosciences	2010-2011
<b>organizer</b> , weekly geochemistry reading group   UA Department of Geosciences	2008-2010
<b>coordinator</b> , new Geosciences graduate student field trip   UA Dept. of Geosciences	2009

## SERVICE—promoting science outreach & diversity

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<b>Postdoctoral Mentor</b>   Univ. Michigan American Women in Science (AWIS)	spring 2017
<b>Graduate Student Rep.</b>   Community Connections Committee, UA College of Science	2011-2014
<b>Outreach Chair</b>   UA College of Science Graduate Council	2011-2014
<b>panelist, Geoscience Outreach Program</b>   UA American Indian Sci. & Eng. Society	10/27/2012
<b>Science Ambassador</b>   National Geographic BioBlitz, Saguaro National Park	Oct. 2011
<b>co-founder/organizer, Earth Science Saturday Academy</b> <i>Developed and ran a one-day UA program for &gt;100 underrepresented middle and high school students, with Mathematics Engineering Science Achievement (MESA) &amp; Southern Arizona Geosciences Union for Academics, Research and Outreach (SAGUARO). It remains an annual department outreach event.</i>	2009, 2010
<b>geoscience lecturer</b>   UA SkyTour, Steward Observatory & Mt. Lemmon SkyCenter <i>Geology lecturer for public astronomy/ecology/geology program</i>	2010

## INVITED TALKS

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**New Mexico Tech (2019), University of the South (2019), Geological Society of American Annual Meeting (2018), University of Rochester (2018), George Mason University (2018), Denison University (2018), Helmholtz Center GFZ, Potsdam, Germany (2018), Johns Hopkins University (2018), Colorado College (2018) American Geophysical Union Fall Meeting (2017), Skidmore College (2016), Juniata College (2015), Macalester College (2014)**

## HONORS & AWARDS

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<b>Best Overall Oral Presentation</b>   42nd GeoDaze, UA Department of Geosciences	4/11/2014
<b>College of Science Award for Excellence in Service</b>   University of Arizona	4/2011
<b>Galileo Circle Scholar Award</b>   College of Science, University of Arizona	2010
<b>Duncan Stewart Fellowship</b>   Carleton College Geology Department	2006-2007
<b>Phi Beta Kappa &amp; Sigma Xi</b>   Carleton College	2007
<b>Annual Dean's List</b>   Carleton College	2004, 2006

## PROFESSIONAL AFFILIATIONS

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**Geological Society of America, American Geophysical Union, Association of Women Geoscientists, National Association of Geoscience Teachers**

## THESES

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<b>Ph.D. Dissertation:</b> <i>Interpreting low-temperature thermochronology in magmatic terranes: Modeling and case studies from the Colorado Plateau</i>	2016
<b>Masters Thesis:</b> <i>Mafic lavas on the Puna plateau sample the diverse lithospheric architecture of the long-lived central Andean orogen</i>	2010
<b>Undergraduate Senior Integrative Exercise,</b> with distinction: <i>Using oxygen isotopes of zircon to determine the magmatic evolution and degrees of contamination in Peggy's Cove monzogranite, Halifax pluton, Nova Scotia</i>	2007

## REFERENCES

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### **Dr. Nathan Niemi**

Associate Professor

Earth and Environmental Sciences, University of Michigan—Ann Arbor

*email:* [naniemi@umich.edu](mailto:naniemi@umich.edu)

*phone:* 734.764.6377

*relationship:* Postdoc mentor

### **Dr. Peter Reiners**

Professor

Geosciences, University of Arizona, Tucson, AZ

*email:* [reiners@email.arizona.edu](mailto:reiners@email.arizona.edu)

*phone:* (520) 621-6000

*relationship:* Ph.D. advisor and mentor

### **Dr. Jean Braun**

Section Head, GFZ & Professor, University of Potsdam

Helmholtz Centre Potsdam, GFZ German Research Center for Geosciences, Potsdam

*email:* [jbraun@gfz-potsdam.de](mailto:jbraun@gfz-potsdam.de)

*phone:* +49 331 288-27520

*relationship:* Ph.D. advisor and mentor

### **Additional professional references:**

#### **Dr. Marin Clark**

Associate Professor, Department Chair

Earth and Environmental Sciences

University of Michigan—Ann Arbor

*email:* [marinkc@umich.edu](mailto:marinkc@umich.edu)

*phone:* 734.615.0484

*relationship:* Postdoc mentor

#### **Dr. David Bailey, on behalf of the Hamilton College Geosciences Department**

Professor, Department Chair

Geosciences

Hamilton College, Clinton, NY

*email:* [dbailey@hamilton.edu](mailto:dbailey@hamilton.edu)

*phone:* 315-859-4142

*relationship:* faculty colleague

#### **Dr. Jay Quade**

Professor

Geosciences

University of Arizona, Tucson, AZ

*email:* [quadej@email.arizona.edu](mailto:quadej@email.arizona.edu)

*phone:* (520) 626-1847

*relationship:* mentor, Ph.D. committee member, and research colleague

#### **Dr. George Davis**

Regents Professor Emeritus

Geosciences

University of Arizona, Tucson, AZ

*email:* [gdavis@email.arizona.edu](mailto:gdavis@email.arizona.edu)

*phone:* 520-349-2622

*relationship:* teaching mentor and colleague, Ph.D. committee member