Kendra E Murray

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Department of Geosciences
Idaho State University
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Pocatello, ID 83209
USA

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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

PROFESSIONAL EXPERIENCE

Associate Professor | Idaho State University Department of Geosciences	2025-present
Assistant Professor | Idaho State University Department of Geosciences	2019-2025
Visiting Assistant Professor | Hamilton College Geosciences Department	2018-2019
Postdoctoral Research Fellow | Univ. of Michigan Dept. of Earth and Envi. Sciences	2016-2018
Graduate Research/Teaching Assistant | Univ. of Arizona Dept. of Geosciences	2008-2016
Graduate Research Fellow | National Science Foundation	2009-2014
Geoscience Intern | ExxonMobil Exploration Company, Houston, Texas	2013
Lab Manager | Barbeau Tectonics & Sedimentation Lab, Univ. of South Carolina	2008
Field Geologist | U.S. Antarctic Program & Univ. of South Carolina	2007-08
Alumni Teaching Assistant | Carleton College Geology Field Seminar in Italy	2007
Student Assistant | Science Education Resource Center, Carleton College	2003-2007

PUBLICATIONS—articles in peer-reviewed journals (**graduate student)

— in review —

Joseph Biasi, Sarah Slotznick, Leif Karlstrom, Alec Brenner, Maria Grozeva, Roger Fu, and **Kendra Murray**, in review, The magmatic longevity of Columbia River Basalt dikes, *Continental mafic volcanism from small to large scale: Honoring the career of Vic Camp*, Geological Society of America Books, submitted July 2025.

— published —

Goughnour, R.L.**, **Murray, K.E.**, Karlstrom, L., Biasi, J., Cox, S.E., O'Sullivan, P., and Finney, B., 2025, Co-inversion of multiple thermochronometers and a paleomagnetic thermometer at a Columbia River flood basalt feeder dike (Oregon, USA) demonstrates the sensitivity of thermal history results to diverse data constraints, *Geosphere*, doi:10.1130/ges02836.1.

Murray, K.E., Niemi, N.A., and Clark, M.K., 2025, Evidence for the Neoproterozoic Rifting of Rodinia in the Rocky Mountain Front Range: *Tectonics*, v. 44, doi:10.1029/2023tc008216.

Abbey, A.L, Wildman, M., Stevens Goddard, A.L., **Murray, K.E.**, 2023, Thermal history modeling techniques and interpretation strategies: Applications using QTQt, *Geosphere*, v. 19, no. 2, p. 493-530 doi: https://doi.org/10.1130/GES02528.1

Murray, K.E., Stevens Goddard, A.L., Abbey, A.L, Wildman, M., 2022, Thermal history modeling techniques and interpretation strategies: Applications using HeFTy, *Geosphere,* v. 18, p. 1622–1642, doi:10.1130/ges02500.1.

Jimenez-Rodriquez, S.**, Dettinger, M., Quade, J., **Murray, K.E.**, 2021, Paleoaltimetry of the western Andes in northern Chile (~18.5-19.5°S), *American Journal of Science*, vol. 321, no. 5, p. 491-533. doi: 10.2475/05.2021.01.

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 —

Murray, K.E., Stevens Goddard, A.L., Ketcham, R.A. Technical Note: The Utility of the Controlled Random Search (CRS) Algorithm for Thermal History Analysis in HeFTy, for *Geochronology*.

Miller, A.**, **Murray, K.E.**, Pearson, D.M., and Cox, S.E., *in prep.*, Using deep-time thermochronology to recover missing geologic histories across unconformities in the Uinta Mountains, Utah, for *Rocky Mountain Geology*.

Dietz, H.M.**, **Murray, K.E.**, Pu, X., Sutherland, R.L**., *in prep.*, Quantifying pre-eruptive magmatic water content of eastern Snake River Plain basaltic melts using olivine and plagioclase hygrometry, for *Geochemistry, Geophysics, Geosystems*

PUBLICATIONS—white papers, not peer-reviewed

Murray, K.E and Pu, X. 2022, Characterization of Olivine in Primitive Eastern Snake River Plain Basalts, 31 p. *A white paper prepared for the Technical Integration Team of the Probabilistic Volcanic Hazard Assessment project at Idaho National Laboratory, to report on activities from FY 2022 grant funded by Battelle Energy Alliance LLC.*

Ketcham, R.A., Tremblay, M., Abbey, A., Baughman, J., Cooperdock, E., Jepson, G., **Murray, K.E.**, Odlum, M., Stanley, J., and Thurston, O., 2022, *Report from the 17th International Conference on Thermochronology*: Earth and Space Science Open Archive, p. 20, doi:10.1002/essoar.10511082.1.

Kobs Nawotniak, S., McCurry, M., **Murray, K.E**., 2022, Eastern Snake River Plain Volcanic Events Reconnaissance Study 2022 PHVA NDCA Report, 29 p. *A white paper prepared for the Technical Integration Team of the Probabilistic Volcanic Hazard Assessment project at Idaho National Laboratory, to report on activities from FY 2022 grant funded by Battelle Energy Alliance LLC.*

Kobs Nawotniak, S., McCurry, M., **Murray, K.E.**, 2021, Eastern Snake River Plain Volcanic Events Reconnaissance Study 2021 PHVA NDCA Report, 32 p. *A white paper prepared for the Technical Integration Team of the Probabilistic Volcanic Hazard Assessment project at Idaho National Laboratory, to report on activities from FY 2021 grant funded by Battelle Energy Alliance LLC.*

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

Murray, K.E., Stevens Goddard, A.L., Ketcham, R.A., 2025, Exploring the Utility of the Controlled Random Search (CRS) Algorithm for Thermal History Analysis in HeFTy, *19th International Conference on Thermochronology*, Kanazawa, Japan, Sept 14-20 (talk)

Manandhar, E.**, Pearson. D.M., **Murray, K.E.**, Guenthner, W.R., Orme, D.A., 2025, Low-temperature thermochronological constraints on the timing, magnitude, and spatial extent of Late Cretaceous cooling within the enigmatic Teton-Gros Ventre uplift, *Geological Society of America Abstracts with Programs,* v. 57, n. 5 doi:10.1130/abs/2025RM-410247 (talk)

Heebner, M.T. *, Pearson, D.M., **Murray, K.E.**, Miller, A., 2024, U/Pb zircon dating of basement rocks in the eastern Uinta Mountains, Utah suggests 2.7-2.3 Ga deposition and ca. 1.7 Ga metamorphism at the southern margin of the Wyoming Province, *Geological Society of America Abstracts with Programs*, v. 56, n. 5, doi: 10.1130/abs/2024AM-404741.

Kennedy, R.**, Orme, D., Lageson, D.R., Laskowski, A., Morrow, Z.*, Moss, K.*, **Murray, K.E.**, 2024, Evidence of latest Archean to Hadean crustal material in the northern Wyoming Province and the deep-time tectonothermal history of the Bridger Range, Montana, *Geological Society of America Abstracts with Programs*, v. 56, n. 5, doi: 10.1130/abs/2024AM-404615. (talk)

Dietz, H.**, **Murray, K.E.**, Pu, X., Sutherland, R.L.**, 2024, Quantifying pre-eruptive magmatic water content of eastern Snake River Plain basaltic melts using olivine and plagioclase hygrometry with implications for magmatic differentiation, *Geological Society of America Abstracts with Programs,* v. 56, n. 4, doi: 10.1130/abs/2024CD-399845.

Miller, A.**, Pearson, D., **Murray, K.E.**, 2023, Using deep-time thermochronology to recover missing geologic histories across unconformities: a proof of concept using samples below Neoproterozoic strata in the Uinta Mountains, Utah, *Geological Society of America Abstracts with Programs*, v. 55, v. 6, doi: 10.1130/abs/2023AM-395957.

Bartlet, C.**, Sundell, K.E., Link, P.K., Pearson, D., **Murray, K.E.**, Bottenberg, C., Welcker, C., Exploring the geochemical variation of magmatic rocks of Idaho using paired geochronology-geochemistry of detrital zircon in modern rivers, *Geological Society of America Abstracts with Programs*, v. 55, v. 6, doi: 10.1130/abs/2023AM-395651.

Murray, K.E., 2023, The opportunities and complexities of leveraging magmatism's impact on low-temperature thermochronometers, *18th International Conference on Thermochronology*, Riva del Garda, Italy, Sept 3-9. (Invited Talk)

Murray, K.E., Abbey, A.L., Stevens Goddard, A.L, Wildman, M., 2023, Towards more rigorous thermal history modeling practices, *Gordon Research Conference on Geochronology*, Mt. Snow, Vermont, Aug. 13-18.

Biasi, J., Grozeva, M., Slotznick, S., Karlstrom, L., **Murray, K.E.**, Goughnour, R.**, 2023, Understanding Magma Transport via the Baked Contact Test: An Example from the Columbia River Basalts, *Geological Society of America Abstracts with Program*, v. 55, n. 4, doi: 10.1130/abs/2023CD-387212

Genta, K.*, **Murray, K.E.**, Pearson, D.M., 2023, Characterization of zircons from basement cobbles collected from the Neoproterozoic Pocatello Formation to assess potential archive of basement-rock thermal histories, *Geological Society of America Abstracts with Programs*, v. 55, n. 5, doi: 10.1130/abs/2023RM-387977.

Rubin, G.**, **Murray, K.E.**, Karlstrom, L., Goughnour, R.**, 2023, Using (U-Th)/He thermochronology to quantify the variability of dike emplacement along strike during the main phase of the Columbia River Flood basalts, *Geological Society of America Abstracts with Programs,* v. 55, n. 5, doi: 10.1130/abs/2023RM-387996.

Murray, K.E., Pu, X., Sutherland, R.**, Dietz, H.**, 2023, Application of olivine hygrometry to Eastern Snake River Plain basalts: Implications for the volatile budget during magmatic differentiation, *Geological Society of America Abstracts with Programs,* v. 55, n. 5, doi: 10.1130/abs/2023RM-388046.

Goughnour, R.**, **Murray, K.E.**, Karlstrom, L., Biasi, J., Cox, S., O'Sullivan, P., 2022, Intercalibration of thermochronometers and a magnetic geothermometer to quantify the conditions and duration of magma flow through a Columbia River flood basalt dike, *Geological Society of America Abstracts with Programs,* v. 54, n. 5, doi: 10.1130/abs/2022AM-382616.

Hampton, R.**, Goughnour, R.**, Biasi, J., Rubin, G.**, **Murray, K.E.**, Karlstrom, L., 2022, Using multiple thermochronometers across the Maxwell Lake Dike Complex to infer magma transport durations of the main phase Columbia River flood basalt eruptions, *Geological Society of America Abstracts with Programs,* v. 54, n. 5, doi: 10.1130/abs/2022AM-382045. (talk)

Sutherland, R.L.**, **Murray, K.E.**, Pu, X., McCurry, M., 2022, Evidence of rapid phenocryst growth and constraints on pre-eruptive temperature and melt H_2O content of basaltic flow samples from Eastern Snake River Plain olivine basalts, *Geological Society of America Abstracts with Programs*, Rocky Mountain-Cordilleran Section Joint Meeting, Las Vegas, Nevada, 17 March, doi: 10.1130/abs/2022CD-373822.

Hampton, R.**, Biasi, J., Goughnour, R.**, Karlstrom, L., **Murray, K.E.**, 2021, Emplacement Mechanics of Mafic Super-Eruptions in the Columbia River Basalt Province from Structural, Geochemical, Thermochronologic, and Magnetic Investigation of the Maxwell Lake Dike Complex, AGU Fall Meeting, New Orleans, LA, 13-17 Dec. (talk)

Goughnour, R.**, **Murray, K.E.**, Karlstrom, L., Cox, S., O'Sullivan, P., 2021, Quantifying the duration of magma flow through Columbia River Flood Basalt dikes using (U-Th)/He, fission-track, and $^{40}Ar/^{39}Ar$ thermochronology, 17th International Conference on Thermochronology, Santa Fe, NM, 13-17 September.

Murray, K.E., and Niemi, N.A., 2021, Know (all!) your assumptions, investigate the sensitivities: Towards more rigorous thermal history modeling practices, 17th International Conference on Thermochronology, Santa Fe, NM, 13-17 September. doi.org/10.1002/essoar.10508960.1.

Stevens Goddard, A.L., Fosdick, J., **Murray, K.E.**, 2021, Maximizing Inverse Thermal History Model Results as a Strategy for Effective Geologic Interpretations, 17th International Conference on Thermochronology, Santa Fe, NM, 13-17 September, doi.org/10.1002/essoar.10508076.1. (talk)

Abbey, A.L, **Murray, K.E.**, Stevens Goddard, A.L., Wildman, M., 2021, Navigating the modeling puzzle: Using forward and inverse models to make clear decisions when exploring and interpreting cooling ages in both HeFTy and QTQt, 17th International Conference on Thermochronology, Santa Fe, NM, 13-17 September.

Murray, K.E., Stevens Goddard, A.L., Abbey, A.L, Wildman, M. 2020, Six Forward and Inverse Models in HeFTy Everyone Should Perform Before Interpreting Real Cooling Ages, AGU Fall Meeting, Online, Dec 1-17.

Abbey, A.L, Wildman, M., Stevens Goddard, A.L., **Murray, K.E.**, 2020, Escaping the infinite modeling maze: useful decision pathways to follow when exploring and interpreting thermal history models using QTQt, AGU Fall Meeting, Online, Dec 1-17.

Murray, K.E., Clark, M.K., Niemi, N.A., 2020, Rocky Mountains ride high on ancient rifted margin, *Geological Society of America Abstracts with Programs,* Rocky Mountain Section Meeting, Provo, UT, May [cancelled due to COVID]. (poster).

Resor, P.G., Tewksbury, B.J., Wenner, J.M., Blisniuk, K., Condit, C.B., Egger, A.E., Fredrick, K.C., Kirkpatrick, J.D., Mana, S., **Murray, K.E.**, Pratt-Sitaula, B.A., Regalla, C., Tewksbury-Christle, C.M.**, 2019, On-Ramps to More Effective Teaching: Quick-Start Guides to Strategies for Actively Engaging Students in the Classroom to Improve Learning, AGU Fall Meeting, San Francisco, CA, Dec 9-13.

Murray, K.E., Clark, M.K., Niemi, N.A., 2019, Rocky Mountains ride high on ancient rifted margin, *Geological Society of America Abstracts with Programs,* Annual Meeting, Phoenix, AZ, Sept. 22-25. (talk)

Kennedy, S.*, Portenga, E.W., **Murray, K.E.**, Bhattarai, S.**, 2019, Exploring a possible link between trackless zircons and regional volcanism in northern Australia, *Geological Society of America Abstracts with Programs,* Annual Meeting, Phoenix, AZ, Sept. 22-25.

TEACHING

Assistant/Associate Professor | Idaho State University Department of Geosciences — 2019-present

undergraduate classes

GEOL 1100 The Dynamic Earth (3-cr General Education) | Spring 2025
GEOL 3313 Earth Materials I (4-cr, with lab) | Fall 2019, 2020, 2021, 2022, 2023, 2024, 2025
GEOL 3314 Earth Materials II (4-cr, with lab) | Spring 2020, 2023, 2024, 2025
GEOL 4450 Field Geology (6-cr, co-taught one week) | Summer 2022, 2023, 2024, 2025

undergraduate & graduate classes

GEOL 44/5599 MATLAB® for the Earth & Environmental Sciences (3-cr) | Spring 2021, 2024
GEOL 44/5522 Chemical Evolution of the Earth (3-cr) | Fall 2022
GEOL 44/5591 Seminar (1-cr field trip course, co-taught) | Spring 2020, 2023, 2025
GEOL 44/5595 Tectonics Reading Seminar (1-cr, co-taught) | since Fall 2021

graduate classes

GEOL 6620 Geochronology & Thermochronology (3-cr) | Fall 2020, Spring 2023, Fall 2024
GEOL 6601 Advanced Physical Geology (2-cr, co-taught) | Fall 2019, 2021, 2023, 2025
GEOL 6603 Geologic Writing Seminar (2-cr, co-taught) | Spring 2021

Visiting Assistant Professor | Hamilton College Geosciences Department — 2018-19

undergraduate classes

Principles of Geoscience: Geologic Hazards | Fall 2018
MATLAB® for the Earth and Environmental Sciences | Spring 2019
Sedimentology & Stratigraphy | Spring 2019

Graduate Teaching Assistant | UA Department of Geosciences — 2008-15

Taught and graded weekly labs, including classroom lecture and field exercises

Sedimentology & Stratigraphy | (2008, 2009, 2015) instructor: Andy Cohen or George Gehrels
Structural Geology | (2013) instructor: George Davis

Alumni Teaching Assistant | Carleton College & Osservatorio Geologico di Coldigioco — 2007

Updated curriculum, taught field methods, graded, and provided logistical support for 10-week Geology Field Seminar in Italy.

Laboratory Teaching Assistant | Carleton College Geology Department — 2006-07

Petrology, Structural Geology, Introduction to Geology

GRANTS, FELLOWSHIPS, & SCHOLARSHIPS

External Proposals & Grants | total: $2,286,051; awarded: $821,357; pending: $745,287

funded, currently active

Lead PI, NSF-EAR-Tectonics | Collaborative Research: Reconstructing the missing record of late Proterozoic tectonism along the western margin of Laurentia using deep-time thermochronology [NSF-EAR-2140480] (total award: $790,670; ISU is lead institution) — $404,141 — 5/22-5/25

co-PI, NSF-EPSCoR | EPSCoR Graduate Fellowship Program (EGFP): Idaho Student Excellence in Education and Research (I-SEER) [NSF-DGE-2500523] — $954,000 — 7/25-7/28

funded, then cancelled by DOGE 4/2025

PI, AGeS3-TRaCE | Building accessible and sustainable community resources for thermal history modeling methods — $9,924 — funded 12/24

submitted, "pending" at NSF since 3/15/2025

Co-PI, NSF-BCS | MRI: Track 1 Acquisition of a Variable Pressure Scanning Electron Microscope for Nano and Micro-scale Imaging, Elemental Analysis and Materials Science at Idaho State University — $745,287 — submitted 11/24 *funded & completed*

PI, US Department of the Interior | Research Assistants for Data Collection and Management and Interpretive Studies Related to the USGS Mission at the Idaho National Laboratory [G22AC00202-00]	$78,556	8/22-7/24
PI, Battelle Energy Alliance LLC - BEA - INL | Characterization of olivine in primitive (high-MgO) ESRP tholeiites sampled in borehole core to quantify magma volatile load	$55,333	3/22-9/22
Co-PI, Battelle Energy Alliance LLC - BEA - INL | Eastern Snake River Plain Volcanic Events Reconnaissance Study (FY 2022)	$93,211	10/21-9/22
Co-PI, Battelle Energy Alliance LLC - BEA - INL | Eastern Snake River Plain Volcanic Events Reconnaissance Study (FY 2021)	$64,965	5/21-9/21
Co-PI, NSF-ICER Geoscience Education | EAGER: Collaborative Research: Promoting Diverse and Inclusive Leadership in the Geosciences (GOLD-EN) [RISE-2037438]	$35,000	1/22-7/24
PI, US Department of the Interior | Research Assistants for Data Collection and Management and Interpretive Studies Related to the USGS Mission at the Idaho National Laboratory [G20AC00097-0000]	$80,227	8/20-7/22

submitted, not selected for funding

Co-PI, NSF-BCS | MRI: Acquisition of a Variable Pressure Scanning Electron Microscope for Nano and Micro-scale Imaging, Elemental Analysis and Materials Science at Idaho State University	$719,416	submitted 11/23

<u>Internal Proposals & Grants | total: $91,080; awarded: $91,080</u>

funded & completed

PI, ISU-Center for Advanced Energy Research | Seed Grant: Olivine phenocryst evolution in the Snake River Plain basalt flows that underlie the Idaho National Laboratory	$19,101	1/21-3/22
PI, ISU Office for Research | ISU Office for Research Year-End Funding Request	$11,979	3/23-6/23
PI, ISU College of Science and Engineering | CoSE Strategic Investment Fund Proposal: Instructional stereomicroscopes for Geosciences Department courses	$60,000	12/22-6/23

<u>External Student-led Proposals & Grants</u>

Funded, currently active

co-advisor to Z. Ellia, Geological Society of America Graduate Student Research Grant | Using baddeleyite and apatite petrochronology of mafic dikes to investigate the Neoproterozoic thermotectonic history of the northern Rocky Mountains	$2,627	5/25-5/26

funded & completed

advisor to H. Dietz, Geological Society of America Graduate Student Research Grant | Quantifying pre-eruptive water content of eastern Snake River Plain basaltic melts using plagioclase hygrometry, Idaho, USA (Dietz was awarded a Lipman Student Research Grant)	$2,500	5/23-5/24
advisor to R. Goughnour, Awards for Geochronology Student Research (AGeS2) | Quantifying the duration of magma flow through two Columbia River Flood Basalt dikes using the biotite Ar thermochronometer	$8,696	5/21-5/22

submitted, not selected for funding

co-advisor to Z. Ellia, Awards for Geochronology Student Research (AGeS3) | Using baddeleyite and apatite petrochronology of mafic dikes to investigate the Neoproterozoic thermotectonic history of the northern Rocky Mountains	$9,024	submitted 2/25

co-advisor to Z. Ellia, NSF Graduate Research Fellowship Program | Using geo- and thermochronology of Neoproterozoic mafic dikes and their country rocks to constrain the Neoproterozoic tectonothermal history of the northern Rocky Mountains	$159,000	submitted 11/24
advisor to H. Dietz, Mineralogical Society of America Grad Student Research Grant | Quantifying pre-eruptive water content of eastern Snake River Plain basaltic melts using plagioclase hygrometry, Idaho, USA	$5,000	submitted 3/23
advisor to R. Goughnour, NSF-Graduate Research Fellowship Program | Constraining the tempo of Columbia River Flood Basalt emplacement using Bayesian modeling of thermochronologic data	$138,000	submitted 10/20

Funding received prior to joining the faculty at Idaho State University

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

STUDENT RESEARCH ADVISING

Graduate Students | primary advisor (MS Geology unless otherwise noted)

current students

Zachary Ellia (co-advised with Pearson)	2024-present
David Johnson (co-advised with Pearson)	2024-present

graduated

Elisha Manandhar (co-advised with Pearson)	2023-2025
Haley M. Dietz, 2024	2022-24
Anna Miller, 2024 (co-advised with Pearson)	2022-24
H. Eugene (Gene) Rubin, 2024	2021-24
Rebecca (Becca) Goughnour, 2022	2020-22
R. Lindsey Sutherland, 2022	2020-22

Graduate Students | committee member (ISU MS Geology unless otherwise noted)

Rebekah Kennedy, PhD student at Montana State University	2023-present
David Cavell	2023-present
Shanon J. Wilmot (Brailsford), 2022, MS GIS	2020-22
Edwin (Chase) Porter, 2021 (not available for defense due to FMLA)	2020-21

Undergraduate Students

Leigh Blom, BS Geology, *Characterizing the Geosciences Kitchen Countertop*	2025-present
M. Tiago Heebner, BS Geology, *Uinta Mountains Paleoproterozoic tectonics*	2023-2024
Katelyn Genta, BS Geology, *Pocatello Formation conglomerate chronology*	2022-23
Alyssa DeSmit, BS Geology, *GIS mapping of the Great Unconformity*	2021
Adrianna Gibson, BS Geology, *Mineral Separation*	2020

INVITED RESEARCH TALKS

Since joining the faculty at ISU (2019-present)

18th International Conference on Thermochronology, Riva del Garda, Italy (2023), **Wyoming Geological Society** (2023), **Montana State University** (2022), **Central Washington University** (2022), **Tobacco Root Geological Society 46th Annual Field Conference** (2021), **Pittsburgh Geological Society (**2021**)**, **University of Calgary Enkelmann Thermochronology Group** (2020), **University of Kentucky** (2020), **University of Oregon** (2020), **Boise State University** (2020),

University of Utah (2019), **Utah State University** (2019)

Prior to joining the faculty at ISU (2014-2019)

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)

SERVICE

Idaho State University | Department of Geosciences

ongoing

Undergraduate Academic Advisor | all Geology majors and minors	2020-present
optical microscopy facilities for research and teaching | manager	2019-present
rock preparation & mineral separation facilities | co-manager	2019-present

discrete

Geosciences Curriculum Committee | co-leader	2023-24
Geosciences Student Advisory Board | faculty liaison	2022-24
Sedimentary Geology Faculty Search Committee | member	2020-21
Department Colloquium | organizer of weekly speaker series	2020-21

Idaho State University | College of Science and Engineering (CoSE) & University

ongoing

Undergraduate Academic Advisor | Secondary Education majors with Geology or Natural Science endorsements	2020-present
Academic Standards Council | Vice-Chair, CoSE representative	2024-present

discrete

Graduate Faculty Representative | external committee member

Henry Thomas, MS Biology	7/2024
Camdon Kay, MS Biology	11/2022

Service the national & international Geoscience community

Short Course & Workshop Leadership

QTQt and HeFTy: Beyond the User Manuals | co-instructor

International Conference on Thermochronology pre-conference course — 2021, 2023, 2025

Thermo 2021: ~35 participants at a conference with ~90 attendees
Thermo 2023: ~75 participants at a conference with ~230 attendees
Thermo 2025: ~25-35 participants at a conference with ~200 attendees

Methods and Applications in Geo-Thermo-Petro-Chronology | co-instructor — 2022, 2023, 2024, 2025

GSA Annual Meeting one-day pre-conference course

typical enrollment is ~20-30

Conference Leadership

Geological Society of America (GSA) Annual Meetings — 2016-present

session convener (2022, 2024)
field trip leader (2016, 2021)

GSA Rocky Mountain Section meetings | session convener	2022
International Conference on Thermochronology | subcommittee member	2021
American Geophysical Union Fall Meetings | session convener	2017, 2020

Workshop Participation

Tectonics Educators OnRamps | contributed to 2-page quick-start guides for using effective strategies that actively engage students in the classroom, https://serc.carleton.edu/onramps/downloads.html	4/2019
ADVANCEGeo Bystander Intervention Training | participant	10/2018; 1/2024

Peer Review—Proposals

panelist, National Science Foundation | Directorate for Geosciences	2021
ad hoc reviewer, National Science Foundation | EAR-Tectonics, EAR-Petrology and Geochemistry, GEO-Division of Polar Programs, EAR-Frontiers in Earth Sciences, GEO-Critical Minerals	2017-present
ad hoc reviewer, American Chemical Society | Petroleum Research Fund	2022-present

Peer Review—Manuscripts etc.

ad hoc reviewer for scientific journals | *Tectonics, Geology, G-cubed, Chemical Geology, JGR-Earth Surface, Gondwana Research, Nature Communications, African Journal of Earth Sciences, Geosphere, Elements, Lithosphere, Geostandards and Geoanalytical Research, Nature Geoscience, JGR-Solid Earth, Geosciences, Earth Surface Processes and Landforms, Geochronology, Science Advances*	6-12 reviews/yr, since 2016
Special Issue co-coordinator | for the journal *Geochronology* Proposed a special issue "Technical notes on modelling thermochronologic data" in response to community-identified need. Accepted 3/2024. https://www.geochronology.net/articles_and_preprints/scheduled_sis.html	4/2024-present

University of Arizona | as a graduate student

Geosciences Department Representative | College of Science Graduate Council	2009-2014
Graduate Student Rep. | Community Connections Committee, College of Science	2011-2014
Outreach Chair | College of Science Graduate Council	2011-2014
EarthWeek Conference Committee | School of Earth & Environmental Science *Chair, EarthWeek 2013* *Geosciences representative & program editor, EarthWeek 2012*	2011-2013
GeoDaze Symposium | Department of Geosciences *Co-chair, 40th Annual GeoDaze (2012)* *Treasurer, 38th Annual GeoDaze (2010)* *Publications co-chair, 37th Annual GeoDaze (2009)*	2008-2012
panelist, Geoscience Outreach Program | American Indian Sci. & Eng. Society	10/2012
Science Ambassador | National Geographic BioBlitz, Saguaro National Park	10/2011
organizer, weekly "brown bag" seminar | Department of Geosciences	2010-2011
organizer, weekly geochemistry reading group | Department of Geosciences	2008-2010
coordinator, new Geosciences graduate student field trip | Department of Geosciences	2009
co-founder/organizer, Earth Science Saturday Academy *Developed and ran a one-day UA program for >100 underrepresented middle and high school students, with Mathematics Engineering Science Achievement (MESA) & Southern Arizona Geosciences Union for Academics, Research and Outreach (SAGUARO). It remains an annual department outreach event.*	2009, 2010
geoscience lecturer | UA SkyTour, Steward Observatory & Mt. Lemmon SkyCenter *Geology lecturer for public astronomy/ecology/geology program*	2010

HONORS & AWARDS

(nominated) **Distinguished Teacher** | Idaho State University	3/2023
Best Overall Oral Presentation | 42nd GeoDaze, UA Department of Geosciences	4/11/2014
College of Science Award for Excellence in Service | University of Arizona	4/2011
Galileo Circle Scholar Award | College of Science, University of Arizona	2010
Duncan Stewart Fellowship | Carleton College Geology Department	2006-2007
Phi Beta Kappa & Sigma Xi | Carleton College	2007
Annual Dean's List | Carleton College	2004, 2006

PROFESSIONAL AFFILIATIONS

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

THESES

Ph.D. Dissertation: *Interpreting low-temperature thermochronology in magmatic terranes: Modeling and case studies from the Colorado Plateau* 2016

Masters Thesis: *Mafic lavas on the Puna plateau sample the diverse lithospheric architecture of the long-lived central Andean orogen* 2010

Undergraduate Senior Integrative Exercise, with distinction: *Using oxygen isotopes of zircon to determine the magmatic evolution and degrees of contamination in Peggy's Cove monzogranite, Halifax pluton, Nova Scotia* 2007