

MATTHEW E. BRUESEKE

CURRICULUM VITAE

Department of Geology
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EDUCATION

2006: Ph.D. (Geology), Miami University, Oxford, OH

Dissertation: Mid-Miocene magmatic system development in the northwestern United States.

Ph.D. Advisor: Dr. William K. Hart; Ph.D. committee members: Elisabeth Widom, Brian Currie, Michael Brudzinski, John Hughes, and Michael Pechan.

1997: A.B. (Geology, minor in Physical Geography), Miami University, Oxford, OH

Senior project: Chronostratigraphy and volcanic stratigraphy of Hagerman Fossil Beds National Monument, Idaho (USA).

TEACHING

Positions Held

Professor and Director of Graduate Studies:

March 2020 – present: Kansas State University. See Associate Professor information below. Responsible for answering inquiries about Geology M.S. degree program at K-State and handling graduate student applications for admission. Revised graduate application procedures and requirements, including leading the effort to drop the GRE scores for admission and instead utilize other more inclusive admission criteria.

Associate Professor (with tenure) and Director of Graduate Studies:

August 2013 – March 2020: Kansas State University. Courses taught include Earth in Action (on campus as large lecture and as an ~20 student First-Year Seminar), Mineralogy, Petrology (Igneous/Metamorphic/Sedimentary), Advanced Igneous and Metamorphic Petrology, X-Ray Methods, Regional Geology (field-based) and Economic Geology. Mineralogy and Petrology include lab sections, in which I am the primary instructor and also supervise graduate teaching assistants. Responsible for answering inquiries about Geology M.S. degree program at K-State and handling graduate student applications for admission.

Assistant Professor and Interim Director of Graduate Studies:

July 2007 – August 2013: Kansas State University. Courses taught include Earth in Action (on campus, via distance education, and as a First-Year Seminar that I developed centered on active learning), Natural Disasters First-Year Seminar, Mineralogy, Petrology (Igneous/Metamorphic/Sedimentary), Structural Geology, Economic Geology, Regional geology (field-based including Death Valley N.P., tectonic evolution of the Snake River plain - Yellowstone volcanic province), and Advanced Igneous Petrology. Mineralogy, Petrology, and Structural Geology include lab sections, in which I am the primary instructor. Also, I supervised undergraduate/graduate teaching assistants for Mineralogy, Petrology, and Structural Geology. Responsible for answering inquiries about Geology M.S. degree program at K-State and handling domestic graduate student applications for admission.

Instructor:

August 2005 - May 2007: Eastern Illinois University. Courses taught include introductory Weather and Climate, a Senior Seminar covering local/global environmental issues (Spaceship Earth), introductory Earth Science (physical geology), Mineralogy, Igneous/Metamorphic Petrology, Tectonics, and Honors Spaceship Earth. Weather and Climate, Earth Science, Mineralogy, and Igneous/Metamorphic Petrology are all lecture-based and each has at least one additional laboratory section that I taught. I also supervised undergraduate teaching assistants for Mineralogy, Igneous/Metamorphic Petrology, Earth Science, and Weather and Climate.

Instructor:

2001 - 2006, 2013: Miami University Geology Field Station (www.muohio.edu/fieldgeology). Primary duties included day-to-day teaching, supervision of graduate student teaching assistants, and assisting with the organization and planning (pre- and during course logistics and content), and pedagogy of Miami University's five-week geology field course. Course emphasis is placed on understanding the

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geologic history of western North America through the description, interpretation, and mapping of local/regional units, structures, and other geologic phenomena throughout the Snake River Plain-Yellowstone volcanic province, the northern Rocky Mountains of the United States and Canada, and the greater Yellowstone region, WY-ID-MT and Wind River Basin, WY.

Teaching Assistant:

March 2003: Geology of the Rio Grande Rift (Field-based in New Mexico)

March 2002: Geology of Big Bend National Park (Field-based in Texas)

1998 - 2000: Courses taught were: Miami University Geology Field Station (field camp), Mineralogy, Igneous and Metamorphic Petrology, Geology of U.S. National Parks, Understanding the Earth (introductory geology laboratory), and the Dynamic Earth (introductory physical geology)

1998: Carbonate Depositional Systems (Field-based in San Salvador, Bahamas and Florida)

Undergraduate Teaching Assistant:

1997: Understanding the Earth (physical geology laboratory)

Education/Teaching Professional Development

2021: Participant, America's Geoh heritage II: Identifying, developing, and preserving America's natural history (U.S. National Academy of Sciences) – Writing Workshop, January 10-15 2021.

2020: Participant, NSF-NAGT-IAGD sponsored “Designing remote field experiences” zoom-based workshops in response to the COVID-19 pandemic.

2019: Participant, NSF, NAGT, and ExxonMobil sponsored “Focusing the lens on field safety: a workshop for field trip leaders” (November, U. Iowa)

2014: Participant, NSF sponsored “Summit on the Future of Undergraduate Geoscience Education” (January, U.T. Austin)

2013: Participant, Kansas State University 2013 Spring Teaching Workshop

2010-2011: Participant, Kansas State University Peer Review of Teaching Program

2011: Participant, 8th annual K-State teaching retreat (January).

2008: Participant, NSF/NAGT sponsored “On the Cutting Edge - Teaching introductory geoscience courses in the 21st century” workshop (July).

2008: Participant and was a primary presenter at NSF/NAGT/GSA sponsored “On the Cutting Edge - Teaching petrology and structural geology in the 21st century” workshop (October).

2007-08: Graduate, K-State New Faculty Institute

HONORS

2021: Geology Department Undergraduate Teaching and Mentoring Award

2019: Page Twiss Faculty Development Award for Excellence in Graduate Advising and Teaching (inaugural award), Kansas State University Department of Geology

2019-20: Kansas State University Goals and Values in Science Faculty Fellowship

2018-2019: Big 12 Faculty Fellowship (awarded to work with Graham Andrews, West Virginia University. Project focused on testing kimberlite emplacement models).

2018: 2018 Honorary Award recipient (Rocky Mountain Federation of Mineralogical and Lapidary Societies for the AFMS Scholarship Foundation)

2015: Nominated for Kansas State University College of Arts and Sciences undergraduate teaching awards

2012: Nominated for Kansas State University College of Arts and Sciences undergraduate teaching awards

2010-2011: Kansas State University Peer Review of Teaching Program Fellow

2008: Elected member of the Graduate Faculty, Kansas State University

2002: Brunton Award, Miami University Department of Geology. For outstanding contribution to field geology education

2000: Elected member of Phi Kappa Phi, academic honor society

1999: Elected member of Sigma Xi, scientific research society

1999: Certificate of merit for research achievements, Miami University Department of Geology

1997: Dean's List, Miami University, fall and spring semesters

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1996: H. Van der Veer Hilker Memorial Scholarship Recipient, Miami University Department of Geology
Awarded to a junior geology major on basis of academic achievement and potential contribution to the community

RESEARCH

Interests

My geologic interests are broad, but primarily lie in the fields of igneous petrology, tectonics, economic geology, and volcanology. These interests are focused on understanding: [1] how magmas form and are modified; [2] relationships between volcanism and tectonism; [3] temporal, spatial, and mass relationships between magmatism and precious metal mineralization; [4] physical volcanology of silicic magmatic products and their eruptive systems; [5] volcanic stratigraphy, including tephrostratigraphy. This experience is centered on the mixed volcanic-sedimentary terranes of the western/central Snake River Plain, Oregon Plateau, and northern Great Basin; in the Wrangell Mountains and other parts of South-Central Alaska; in Precambrian through Quaternary terranes of the greater Wind River basin-Yellowstone region, Wyoming and Centennial Valley and vicinity, southwest Montana, and in Oklahoma and Kansas (U.S.A.).

Positions Held

Research Associate:

2004 - 2005: Department of Geology, Miami University. Primary duties included the field and laboratory investigation of western United States volcanic terranes. I worked closely with graduate and undergraduate students and other support staff to help prepare and perform chemical and Sr-Nd-Pb isotopic analyses of geologic materials by thermal ionization mass spectrometry (TIMS). I also prepared geologic materials for major (DCP-AES) and trace (DCP-AES, XRF, and ICP-MS) element geochemical analyses, helped maintain departmental equipment, and ordered supplies.

Research Assistant:

2000 - 2004: Department of Geology, Miami University. Principal duties included sample preparation of whole rock and purified glass separates for major and trace element geochemical analyses. This included the initial collection in the field and the subsequent rock crushing, thin section blank cutting, clean laboratory work necessary for analyses, and data collection. I also prepared whole rock samples for $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology, performed electron microprobe analyses on select phases (at the University of Kentucky), performed petrographic analysis of igneous materials, purchased laboratory supplies, and organized/purchased supplies for fieldwork and the laboratory.

Research Assistant:

1997 - 1998: Department of Geology, Miami University. Responsibilities included sample preparation of basalt and unconsolidated tephra for major and trace element analyses (DCP-AES). This involved concentrating/purifying bulk glass separates by magnetic/heavy liquid separation techniques, and clean laboratory techniques prior to analyses.

Internal and External Funding (awarded; amount received in bold)

2020: National Science Foundation RAPID: PetCAT-Scan: A high definition scanning tool for geoscientists in the COVID-19 pandemic and beyond. PI: B. Lacroix, CO-PIs: Brueseke, P. Kempton (all KSU). 7/15/2020-present, **\$169,220**.

2020: National Science Foundation RAPID: Collaborative Proposal: Development of Digital Models of Minerals and Rocks for Online Geoscience Classes. PI: G. Andrews (West Virginia U.), CO-PI: Brueseke. 8/1/2020-present, **\$16,864**.

2020: National Science Foundation, Collaborative Research: Investigating out-of-sequence magmatism and mantle plume-lithosphere interactions adjacent to the Snake River plain (U.S.A.). PI: Brueseke, CO-PI: J. Benowitz (UA-Fairbanks) 9/1/2020-present, **\$240,385**

2020: Kansas State University Small Research Grant, Investigating links between <5 million yr. old basaltic volcanism in the Centennial Valley Region and the Yellowstone hotspot. PI: Brueseke, 5/1/2020-4/30/2021, **\$4,428**.

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- 2018: American Federation of Mineralogical Societies Scholarships, awarded to Brueseke to disburse. **\$8,000.**
- 2018: 2018-19 Big 12 Faculty Fellowship: Evaluating kimberlite ascent mechanisms: insights from the Cretaceous volcanoes of Riley County, Kansas (USA). PI: Brueseke, **\$2,312.**
- 2016: National Science Foundation REU Supplement, Collaborative Research: Geological constraints on ~25 Million years of magmatism along an arc-transform junction, Wrangell Volcanic Belt, Alaska. PI: Brueseke. **\$4,880.**
- 2016: Federal Railroad Administration, Field investigation of concrete tie abrasion wear prevalence and contributing environmental factors. PI: K. Riding (KSU), CO-PIs: R. Peterman (KSU) and M. Brueseke. **\$149,991.**
- 2015: National Science Foundation, Collaborative Research: Geological constraints on ~25 Million years of magmatism along an arc-transform junction, Wrangell Volcanic Belt, Alaska. PI: Brueseke, CO-PI: J. Benowitz (UA-Fairbanks), J. Trop (Bucknell), and Paul Layer (UA-Fairbanks). 2/10/2015 – 1/31/2018, **\$173,117.**
- 2014: Kansas State University Small Research Grant, Rare earth element economic potential of Pilot Knob, a Pliocene(?) alkaline intrusive complex in the greater Yellowstone region, northwestern Wyoming. PI: Brueseke, 2014-2015, **\$4000.**
- 2013: Kansas State University - College of Arts and Sciences Proposal for Larger Equipment Purchases – Partial support for a new X-Ray diffractometer: PI: P. Kempton, CO-PI: S. Datta and M. Brueseke, **\$180,000.**
- 2012: Kansas State University Small Research Grant, Mid-Miocene magmatism in the northern Great Basin (USA): Links between local Au-Ag precious metal mineralization and the inception of the Yellowstone hotspot. PI: Brueseke, 2012-2013, **\$2500.**
- 2009: National Science Foundation, K-State TEACH Program (Robert Noyce Scholarship). PI: C. Culbertson, former PI: L. Scharmann, CO-PI's: C. Ferguson, N.S. Rebello, M.Brueseke, former CO-PI: I.M. Totten. 6/15/2009-5/31/2014, **\$875,359** (<http://www.coe.k-state.edu/grants/teach/>).
- 2009: National Science Foundation, Collaborative Research: Magmatism and mineralization in the Owyhee Mountains, ID: A case study of mid-Miocene Au-Ag ores and the emergence of the Yellowstone Hotspot. PI: Brueseke, CO-PI's: J. Saunders & W. Hames (Auburn Univ.). 9/15/09-8/31/14, **\$162,082.**
- 2009: NASA Kansas Space Grant Consortium, Voluminous mafic volcanism on Earth: Field, geochronologic, and geochemical constraints on the temporal and spatial extent of mid-Miocene flood basalt volcanism on the Oregon Plateau (USA). PI: Brueseke, 1/31/09-12/31/09, **\$12,118.**
- 2007: Kansas State University Small Research Grant, Magmatism and mineralization in the Owyhee Mountains, ID: A case study of mid-Miocene Au-Ag ores and Pacific Northwest (U.S.A.) flood basalt volcanism. PI: Brueseke, 2007-2008, **\$2500.**
- 2004: Geological Society of America, Cordilleran section student travel grant, **\$500.**
- 2004: Miami University DUOS (Doctoral-Undergraduate Opportunities in Scholarship; <http://www.users.muohio.edu/shorec/DUOS/duos.htm>) program with Jacob Knight, **\$1000.**
- 2003: Geological Society of America, Cordilleran section student travel grant, **\$185.**
- 2002: Geological Society of America, Cordilleran section student travel grant, **\$475.**
- 2001: Geological Society of America, Student Research Grant, **\$1875.**
- 1999: Geological Society of America, Rocky Mt. section student travel grant, **\$350.**
- 1999: Miami University Graduate Student Association Travel Assistance Award, **\$150.**
- 1998: Geological Society of America, Student Research Grant, **\$1500.**

Student Mentee Research Funding (\$36,121 total)

- 2021: Alyssa Endrich, Geological Society of America Student Research Grant – Lipman Student Research grant, **\$2500.**
- 2021: Alyssa Endrich, Tobacco Root Geological Society Field Scholarship, **\$1000.**
- 2021: Alyssa Endrich, KSU Graduate student council travel award, **\$400**
- 2021: Alyssa Endrich, KSU College of Arts and Sciences Research Travel award, **\$400.**
- 2021: Alyssa Endrich, South Central GSA section travel grant, **\$300**
- 2021: Alex Karrasch, KSU College of Arts and Sciences Research Travel award, **\$400**

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- 2019: Emily Fenner, Geological Society of America Student Research Grant, **\$2,600.**
- 2019: Emily Fenner, Society of Economic Geologists Student Research Grant, **\$1,183.**
- 2018: Pat Manselle, KSU College of Arts and Sciences Research Travel award, **\$800.**
- 2018: Emily Fenner, American Federation of Mineralogical Societies Scholarship, **\$4,000.**
- 2018: Pat Manselle, Alaska Geological Society – Don Richter Memorial Scholarship, **\$2000.**
- 2017: Maridee Weber, KSU College of Arts and Sciences Research Travel award, **\$800.**
- 2017: Maridee Weber, KSU Office of Undergraduate Research & Creative Inquiry travel grant, **\$1000.**
- 2017: Chris Wierman, Society of Economic Geologists Student Research Grant, **\$2800.**
- 2017: Chris Wierman, Geological Society of America Student Research Grant, **\$1488.**
- 2016: Maridee Weber, KSU College of Arts and Sciences Research Travel award, **\$800.**
- 2016: David Martin, KSU College of Arts and Sciences Undergraduate Research award, **\$1000.**
- 2015: Anna Maynard, Geological Society of Nevada (Elko Chapter), **\$1000.**
- 2015: Anna Maynard, Geological Society of America Student Research Grant, **\$1100.**
- 2014: Caleb Dodd, Society of Economic Geologists Student Research Grant, **\$2000.**
- 2014: Anna Downey, Geological Society of America Student Research Grant, **\$900.**
- 2014: Anna Downey, Tobacco Root Geological Society Field Scholarship, **\$500.**
- 2014: Anna Downey, Wyoming Geological Association J.D. Love scholarship, **\$1000.**
- 2014: Anna Downey, Kansas Geological Foundation research scholarship, **\$1000.**
- 2014: Jasper Hobbs, AAPG Grants-in-Aid (Grants-in-Aid Committee Named Grant), **\$1500.**
- 2014: Jasper Hobbs, KSU-Chapter Sigma Xi Student Research Grant, **\$400.**
- 2013: Benjamin Hamill, KSU-College of Arts and Sciences Undergraduate Research award, **\$250.**
- 2012: Bill Busch, Geological Society of America Student Research Grant, **\$2,000.**
- 2012: Kate Amrhein, Geological Society of America Student Research Grant, **\$1,500.**
- 2011: Casey Bulen, AAPG Grants-in-Aid (Barrett Family Named Grant), **\$500.**

Internal and External Funding – not funded

- 2020: Investigating the connection between subduction of linear oceanic features and arc magmatism
DOLIPRAN: DOts and LInes PRoject: an ANalytic approach. PI: C. Adam (KSU), CO-PI: Brueseke,
\$221,303
- 2015: National Science Foundation: K-State Teach - Phase II. PI: Jacqueline Spears, CO-PI: M. Brueseke,
C. Culbertson, N. S. Rebello, C. Ferguson, \$799,683.
- 2014: National Science Foundation, Collaborative Research: Middle-Miocene silicic magmatism in
northeastern NV: Relationships between the Cenozoic evolution of the northern Great Basin and the
Yellowstone hotspot. PI: Brueseke, CO-PI: W. Hames (Auburn Univ.) and Graham Andrews (CSU-
Bakersfield), \$230,490.
- 2013: National Science Foundation, Collaborative Research: Testing Mesozoic accretionary tectonic
models of the northern Cordillera: Integrated geochronologic and geochemical analyses. PI:
Brueseke, CO-PI: J. Trop (Bucknell, Univ), \$215,403.
- 2012: National Science Foundation, Collaborative Research: Middle-Miocene felsic magmatism in
northeastern NV: Relationships between the Cenozoic evolution of the northern Great Basin and the
Yellowstone hotspot. PI Brueseke, CO-PI: W. Hames (Auburn Univ.) and Graham Andrews (CSU-
Bakersfield), \$176,920.
- 2012: National Science Foundation, Collaborative Research: Testing Mesozoic accretionary tectonic
models of the northern Cordillera: Integrated geochronologic and geochemical analyses. PI:
Brueseke, CO-PI: J. Trop (Bucknell, Univ), \$188,384.
- 2012: U.S. Geological Survey Mineral Resources External Research Program, Collaborative Research with
Auburn University and Kansas State University: Geology and mineral resource potential of an
alkaline porphyry Cu-PGE-Te occurrence, La Plata Mountains, Colorado. PI: J. Saunders (Auburn
Univ), CO-PI: Brueseke, CO-PI: W. Hames (Auburn), \$31,725.
- 2011: National Science Foundation, Collaborative Research: Project Summary: Collaborative Research:
Testing Mesozoic accretionary tectonic models of the northern Cordillera: Integrated geochronologic
and geochemical analyses. PI: Brueseke, CO-PI: J. Trop (Bucknell, Univ), \$200,512.
- 2011: U.S. Geological Survey Mineral Resources External Research Program, Collaborative Research with
Auburn University and Kansas State University: Geology and mineral resource potential of an

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- alkaline porphyry Cu-PGE-Te occurrence, La Plata Mountains, Colorado. PI: J. Saunders (Auburn Univ), CO-PI: Brueseke, \$83,492.
- 2010: National Science Foundation, Acquisition of X-ray Diffraction and Fluorescence units for macro-X-ray analysis in the Earth and Environmental Research Facility (EERF) at Kansas State University. PI: S. Datta (KSU), CO-PI: Brueseke, 7/1/2010 – 6/30/2011 \$418,406.
- 2009: U.S. Geological Survey Mineral Resources External Research Program, Collaborative Research with Auburn University and Kansas State University: Geology and mineral resource potential of a “porphyry” PGE occurrence, La Plata Mountains, Colorado. PI: J. Saunders (Auburn Univ), CO-PI: Brueseke, \$55,653.
- 2009: National Science Foundation, Acquisition of a micro-XRF analyzer for microanalyses of earth materials at Kansas State University. PI: Brueseke, CO-PI: S. Datta (KSU), 1/1/2010 – 12/31/2010 \$118,176.
- 2008: National Science Foundation, Collaborative Research: Testing Mesozoic accretionary tectonic models of the northern Cordillera: Integrated geochronologic, geochemical, and paleomagnetic analyses. PI: Brueseke, CO-PI's: W. Hart (Miami Univ) & J. Trop (Bucknell, Univ), \$149,513.
- 2007: National Science Foundation, Collaborative Research: Magmatism and mineralization in the Owyhee Mountains, ID: A case study of mid-Miocene Au-Ag ores and the emergence of the Yellowstone Hotspot PI: Brueseke, CO-PI's: J. Saunders & W. Hames (Auburn Univ.). 6/1/08-5/31/11, \$152,356.

Primary Student Mentoring

18 M.S. students (all at KSU):

- Alex Bearden, 2020-present*, Newly recognized monogenetic volcanism in south-central Alaska (U.S.A.): the Maclaren river volcanic field - petrogenesis and implications for the architecture of the subducting Yakutat slab, **M.S. in progress.**
- Alyssa Endrich, 2020-present*, Petrogenesis of basalts in the Centennial Valley, MT and vicinity; off-axis volcanism related to the Yellowstone hotspot?, **M.S. in progress.**
- Alex Karrasch, 2020-present*, Mantle plume-lithosphere interactions adjacent to the Snake River plain (U.S.A.) in northwest Wyoming, **M.S. in progress.**
- Emily Fenner, 2018-2020*, Geochemical and mineralogical characterization of low-sulfidation epithermal deposit sinter, Milestone Deposit, Owyhee Mountains, ID, **M.S.**
- Pat Manselle, 2017-2019*, Physical volcanology, sedimentology and geochemistry of the Mid-Cretaceous Chisana Formation, south-central Alaska: implications for models of Wrangellia composite terrane accretion, **M.S.**
- Chris Wierman, 2016-2018*, Copper partitioning in Mid-Miocene flood basalts from the northern Great Basin (U.S.A): implications for Cu behavior in flood basalt provinces, **M.S.**
- Beth Morter, 2015-2017*, Petrography, geochemistry, and geochronology of volcanic clasts from Wrangell Mountains rivers: Characterizing the tempo of Wrangell Volcanic belt, Alaska (USA) magmatism **M.S.**
- Sam Berkelhammer, 2015-2017*, Initiation of the Wrangell arc: A record of tectonic changes in an arc-transform junction revealed by new geochemistry and geochronology of the ~29–18 Ma Sonya Creek volcanic field, Alaska, **M.S.**
- Anna Maynard, 2014-2016*, Cu isotope compositions of Cenozoic mafic rocks from the northern Great Basin and Snake River Plain (USA), **M.S.**
- Anna Downey, 2014-2015*, Cenozoic mafic to intermediate volcanism at Lava Mountain and Spring Mountain, Upper Wind River Basin, Wyoming, **M.S.**
- Caleb Dodd, 2014-2015*, Petrogenesis and rare earth element economic potential of Pilot Knob, a Pliocene(?) alkaline intrusive complex in the Togwotee Pass region, northwestern Wyoming (U.S.A), **M.S.**
- Jasper Hobbs, 2013-2015*, Petrologic Geochemical/isotope constraints on Cambrian basalt volcanism in the Southern Oklahoma Aulocogen, **M.S.**
- Andrew Ingalls, 2012-2014*, Reconnaissance Cenozoic volcanic geology of the Little Goose Creek area, northeastern Elko County, NV with an emphasis on the Jarbidge Rhyolite, **M.S.**
- Bill Busch, Mid-Miocene mafic magmatism in the vicinity of Midas, NV: Implications for the timing and development of local Au-Ag precious metal mineralization, M.S. in progress*

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Kate Amrhein, 2011-2013, Testing models of low- $\delta^{18}\text{O}$ silicic magmatism in the mid-Miocene Santa Rosa-Calico volcanic field, NV, **M.S.**

Casey Bulen, 2010-2012, The Role of Magmatism in the Evolution of the Cambrian Southern Oklahoma Rift Zone: Geochemical Constraints on the Mafic-Intermediate Rocks in the Arbuckle Mountains, OK. **M.S.**

Zachary Hasten, 2010-2012, Mid-Miocene magmatism in the Owyhee Mountains, ID: origin and petrogenesis of volcanic rocks in the Silver City District. **M.S.**

Jeffery Callicoot, 2008-2010, Significance of Mid-Miocene volcanism in northeast Nevada: petrographic, chemical, isotopic, and temporal importance of the Jarbidge Rhyolite, **M.S.**

25 undergraduate students (at KSU unless noted):

Isaiah Euhler, 2021-present, 3D models of minerals and rocks; getting the word out via social media (e.g., Instagram and Twitter). **B.S.**

Cara Gunzleman, 2020-2021, 3D models of minerals and rocks; getting the word out via social media (e.g., Instagram and Twitter). **B.S.**

Ben Walters, 2019-2021, Petrology of Cenozoic igneous rocks adjacent to the Snake River plain, WY/ID; tectonic implications of off-track Snake River Plain-Yellowstone volcanism. **B.S.**

Sarah Green, 2019-2020, Petrology and crystal chemistry of Cenozoic basalts from the Centennial Valley, Montana. **B.S.**

Gergely Motolai, 2019, Soil volume changes during water-ice transition, **B.S.**, Horticulture and Natural Resources

Maridee Weber, 2016-2019, Geochemistry and tectonic significance of hypabyssal intrusives (map units Th/Tp) across the Wrangell Arc (AK) and implications for adakite petrogenesis and slab-edge melting. **B.S.**

David Martin, 2016-2018, Crystal chemistry of feldspar and pyroxene from Miocene Jarbidge Rhyolite lavas (NV). **B.S.**

Wyatt Risovi-Hendrickson, 2016-2107, Lithologic and characterization of railroad ballast and fines for evaluation of track abrasion damage. Civil Engineering **B.S.**

Victoria Fitzgerald, 2016, Geochemical characterization of Wrangell arc lavas from Green Hills section (AK). **B.S.**

Ryan Keast, 2015-2016, Petrogenesis of Euchre Mountain volcanism: potential leaky strike-slip volcanism along the Totschunda Fault, Wrangell Arc (AK). **B.S.**

Clay Robertson, 2015, Characterization of xenoliths from the Fancy Creek, KS kimberlite, **B.S.**

Ben Hamill, 2013, Creation of a dynamic digital geologic map of the Owyhee Mountains, ID in Google Earth, **B.S.**

Caleb Akerstrom, 2011-2013, Geochemical characterization of Cambrian mafic well-cuttings from the Turner Falls test well, OK (U.S.A.), **B.S.**

David Kowal, 2012-2013, Creation and integration of a visual mineral database into Mineralogy and Petrology coursework, **B.S.**

Tyler Meek, 2011-2012, Oxygen isotopes values of igneous rocks from the Owyhee Mts., ID, **B.S.**

Jason Kolb, 2010-2011, Petrography and geochemistry of Cretaceous granitoids from the Owyhee Mts., ID, **B.S.**

Eric Whiting, 2010-2011, Metamorphic rocks of the Flint District (Owyhee Mts.), ID, **B.S.**

Abby Lynch, 2010, Provenance of Quaternary Lake Kaw sediments, KS, **B.S.**

Chris Cook, 2009-2010, Petrology of Eocene ash flow tuffs in the vicinity of Jarbidge, NV, **B.S.**

Josh Foster, 2009- 2010, Mid-Miocene volcanism in the Silver City District, ID, **B.S.**

Kendra Risen, 2007-2008, Mafic(?) intrusive magmatism in the Oregon-Idaho graben, OR, **B.S.**

Jacob Knight, 2003-2005, Characterization of ash flow volcanism in the Santa Rosa-Calico volcanic field, NV (Miami U.), **B.S.**

Lauren Gilbert, 2001-2002, Tephrostratigraphy of the Santa Rosa-Calico volcanic field, NV (MU), **B.S.**

Amy Maloy, 2001-2002, Generation of intermediate magma in the Santa Rosa-Calico volcanic field, NV (Miami U.), **B.S.**

Becki Witherow, 2001, Topic: Sr isotopic analyses of late Cenozoic basalts from the Owyhee Plateau, OR/NV (Miami U.), **B.S.**

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M.S./Ph.D. Thesis and Dissertation Committee Member (all KSU)

Vidhesh Shukla, Department of Geology, 2021-present
William Jarvis, Department of Geology, 2021-present
Carrie Brooks, Department of Geology, 2021-present
Mikaela Rader, Department of Geology, 2019-2021
Hallie Bruce, Department of Geology, 2019-present
Madison Smith, Department of Geology, 2019-2021
Brayton Pew, Department of Geology, 2019-2021
Joshua Ford, Department of Geology, 2018-2020
Kayleigh Rodgers, Department of Geology, 2017-present
Nina Ataee, Department of Geology, 2017-2019
Grant Zwiefelhofer, Department of Geology, 2015-present
Jacob Hughes, Department of Geology, 2015-2018
Michelle Berube, Department of Geology, 2015-2017
Jan Vosahlik, PhD. student, Dept. of Civil Engineering, 2015-2018
Outside Chair for Ph.D., Shahin Nayyri Amiri, Dept. of Mech. and Nuclear Engineering, 2014-2018.
Michael Tummons, Department of Geology, 2014-2017.
Jamie Harrington, Department of Geology, 2014-2015.
Sultan Alkhamalli, Department of Geology, 2013-2015
Shovon Barua, Department of Geology, 2013-2015.
Kolle Kahle-Riggs, Department of Art, 2013-2015.
Brent Campbell, Department of Geology, 2013-2015.
Saad Abdullah Almalki, Department of Geology, 2011-2013
Sankar Manalilkada Sasidharan, Department of Geology, 2011-2013
Chad Hobson, Department of Geology, 2011-2013
Andrea Leggett, Department of Geology, 2011-present
Amelia Fader, Department of Geology, 2011-2012.
Angela Tran, Department of Agronomy, 2011-2012.
Robin Barker, Department of Geology, 2010-2012.
O.C. Eke, Department of Geology, 2009-2011.
Mohammed Al Salim, Department of Geology, 2011 (MS report option).
Andy Neal, Department of Geology, 2008-2010.

Student Mentee Honors/Awards

Emily Fenner, 2019, Second Place, Student Poster Contest (American Exploration & Mining Association annual meeting)
Jasper Hobbs, 2015, First Place, Oral Presentation (Ecology, Environmental and Earth Sciences - 2015 Emerging Researchers National Conference in STEM)
Casey Bulen, 2012 1st place oral presentation (Engineering, Math, and Physical Sciences), K-State Student Research Forum
Tyler Meek, 2011-2012 KSU Chapman Scholar
Andrew Ingalls, 2013-2014 National Science Foundation GK-12 fellowship
Zachary Hasten, 2011-2012 National Science Foundation GK-12 fellowship
Jeffery Callicoot, 2009-2010 National Science Foundation GK-12 fellowship
Kendra Risen, 2007-2008, Intern, KSU Campus Internship Program (CSI)

PEER-REVIEWED PUBLICATIONS (accepted, published; *=student mentee)

Trop, J.M., Benowitz, J.A., Kirby, C., and Brueseke, M.E., 2021 (in press), Geochronology of the Wrangell Arc: Spatial-temporal evolution of slab edge magmatism along a at slab subduction-transform transition, Alaska-Yukon: Geosphere. [https:// doi.org/10.1130/GES02417.1](https://doi.org/10.1130/GES02417.1).
*Manselle, P., Brueseke, M.E., Trop, J.M., Benowitz, J.A., Snyder, D.C., and Hart, W.K., 2020, Geochemical and stratigraphic analysis of the Chisana Formation, Wrangellia terrane, eastern Alaska: Insights into Early

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CURRICULUM VITAE

- Cretaceous magmatism and tectonics along the northern Cordilleran margin, *Tectonics*, <https://doi.org/10.1029/2020TC006131>.
- Saunders, J.A., Burke, M., and Brueseke, M.E., 2019, Scanning-electron-microscope imaging of gold (electrum) nanoparticles in middle Miocene bonanza epithermal ores from northern Nevada, USA: *Mineralium Deposita*, v. 55, p. 389-398, DOI: 10.1007/s00126-019-00935-y
- Trop, J.M., Benowitz, J.A., Koepf, D., Sunderlin, D., Brueseke, M.E., Layer, P.W., Fitzgerald, P., 2019., Stitch in the Ditch: Fluvial strata and a Totschunda fault zone dike in the Nutzotin Mountains (Alaska) record ~117 Ma suturing between the Wrangellia terrane and western North America and initiation of the Totschunda fault zone by ~114 Ma: *Geosphere*, v. 16, p. 1-29. <https://doi.org/10.1130/GES02127.1>
- *Berkelhammer, S.E., Brueseke, M.E., Benowitz, J.A., Trop, J.M., Davis, K., Layer, P.W., and *Weber, M., 2019, Geochemical and geochronological records of tectonic changes along a flat-slab arc-transform junction: ~30 Ma to ~19 Ma Sonya Creek volcanic field, Wrangell Arc, Alaska: *Geosphere*, v. 15, p. 1508-1538, <https://doi.org/10.1130/GES02114.1>
- Kempton, P.D., Rogers, K., Brueseke, M.E., 2019, Windows into the Cretaceous mantle of the North American mid-continent– kimberlites of Riley County, in, Schulmeister, M.K. and Aber, J.S., eds., *Geological Society of America Field Guide 52*, <https://doi.org/10.1130/fl052>
- Brueseke, M.E., Benowitz, J., Trop, J., Davis, K., *Berkelhammer, S., Layer, P., *Mortner, B., 2019, The Alaska Wrangell Arc: ~30 Ma of subduction related magmatism along a still active arc-transform junction: *Terra Nova*. doi.org/10.1111/ter.12369
- Brueseke, M.E., 2018, Book Review: A photographic atlas of flood basalt volcanism: *Frontiers Earth Science*, 6:115. [doi: 10.3389/feart.2018.00115](https://doi.org/10.3389/feart.2018.00115)
- Riding, K.A., Peterman, R.J., Guthrie, S., Brueseke, M., Mosavi, H., Daily, K., *Risovi-Hendrickson, W., 2018, Environmental and track factors that contribute to abrasion damage: *Proceedings of the 2018 Joint Rail Conference JRC2018*, April 2018.
- Brueseke, M.E., *Downey, A.C., *Dodd, Z.C., Hart, W.K., Adams, D.C., and Benowitz, J.A., 2017, The leading wisps of Yellowstone: Post-ca. 5 Ma extension-related magmatism in the upper Wind River Basin, Wyoming (USA) associated with the Yellowstone hotspot tectonic parabola: *Geosphere*. DOI: <https://doi.org/10.1130/GES01553.1>
- Brueseke, M.E., *Hobbs, J.M., *Bulen, C.L., Mertzman, S.A., Puckett, R.E., Walker, J.D., and Feldman, J., 2016, Cambrian intermediate- mafic magmatism along the Laurentian margin: Evidence for flood basalt volcanism from well cuttings in the Southern Oklahoma Aulacogen (U.S.A.): *Lithos*. DOI:10.1016/j.lithos.2016.05.016
- Saunders, J., Mathur, R., Kamenov, G.D., Shimizu, T., Brueseke, M.E., 2016, New isotopic evidence bearing on bonanza (Au-Ag) epithermal ore-forming processes: *Mineralium Deposita*. DOI 10.1007/s00126-015-0623-y
- Ladderud, J.A., Wolff, J.A., Rember, W.C., and Brueseke, M.E., 2015, Volcanic ash layers in the Miocene Lake Clarkia beds: geochemistry, regional correlation, and age of the Clarkia flora: *Northwest Science* <http://dx.doi.org/10.3955/046.089.0402>
- Mason, M.S., Saunders, J.A., Aseto, C., Hames, W.E., and Brueseke, M.E., 2015, Epithermal ores of War Eagle and Florida Mountains, Silver City District, Owyhee County, Idaho: *Geological Society of Nevada, New Concepts and Discoveries*, p. 859-870.
- Brueseke, M.E., *Callicot, J.S., Hames, W., and Larson, P.B., 2014, Mid-Miocene rhyolite volcanism in northeastern Nevada: the Jarbidge Rhyolite and its relationship to the Cenozoic evolution of the northern Great Basin (U.S.A.): *Geological Society of America Bulletin*, v. 126, p. 1047-1067
- Brueseke, M.E., *Bulen, C.L., and Mertzman, S.A., 2014, Major- and trace-element constraints on Cambrian basalt volcanism from well cuttings in the Arbuckle Province, Oklahoma (U.S.A.): in, Suneson, N., *Igneous and Tectonic history of the Southern Oklahoma Aulacogen*, Guidebook 38, Oklahoma Geological Survey, p. 95-104
- Puckett, R.E. Jr., Hanson, R., Eschberger, A., Brueseke, M.E., *Bulen, C., and Price, J., 2014, New insights into the Early Cambrian igneous and sedimentary history of the Arbuckle Mountains area of the Southern Oklahoma Aulacogen from Basement Well Penetrations in the Arbuckle Mountains Area: in, Suneson, N., *Igneous and Tectonic history of the Southern Oklahoma Aulacogen*, Guidebook 38, Oklahoma Geological Survey, p. 61-94

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CURRICULUM VITAE

- Hanson, R.E., Puckett, R.E. Jr., Keller, G.R., Brueseke, M.E., *Bulen, C.L., Mertzman, S.A., and McCleery, D.A., 2012, Cambrian Wichita igneous province in the southern OK rift zone: *Lithos*, doi: 10.1016/j.lithos.2012.06.003
- Saunders, J.A., and Brueseke, M.E., 2012, Volatility of metal(oids) during subduction-related “distillation” and the geochemistry of epithermal ores of western USA: *Economic Geology*, v. 107, p. 165-172
- Henry, C.D., McGrew, A.J., Colgan, J.P., Snoke, A.W., and Brueseke, M.E., 2011, Timing, distribution, amount, and style of Cenozoic extension in the northern Great Basin, in Lee, J., and Evans, J.P., eds., *Geologic Field Trips to the Basin and Range, Rocky Mountains, Snake River Plain, and Terranes of the U.S. Cordillera: Geological Society of America Field Guide 21*, p. 27–66.
- Brueseke, M.E., 2011, Magmatism and mineralization in the northern Great Basin: mid-Miocene volcanism related to the inception of the Yellowstone hotspot and its relationship to regional bonanza ore deposits: *Geological Society of Nevada, Great Basin Evolution and Metallogeny*, p. 247-255
- Brueseke, M.E., and Hart, W.K., 2009, Intermediate composition magma production in an intracontinental setting: Unusual andesites and dacites of the mid-Miocene Santa Rosa-Calico volcanic field, northern Nevada: *Journal of Volcanology and Geothermal Research*, v. 188, p. 197-213
- Brueseke, M.E. and Hart, W.K., 2008, Geology and petrology of the mid-Miocene Santa Rosa-Calico volcanic field, northern Nevada. Nevada Bureau of Mines and Geology Bulletin #113
- Brueseke, M.E., Hart, W.K., and M.T. Heizler, 2008, Diverse mid-Miocene silicic volcanism associated with the Yellowstone-Newberry thermal anomaly: *Bulletin of Volcanology*, v. 70, p. 343-360
- Brueseke, M.E., Heizler, M.T., Hart, W.K., and S.A. Mertzman, 2007, Distribution and geochronology of Oregon Plateau (U.S.A.) flood basalt volcanism: The Steens Basalt revisited: *Journal of Volcanology and Geothermal Research*, v. 161, p. 187-214
- Hughes, J.M., Cureton, F.E., Marty, J., Gault, R.A., Gunter, M.E., Campana, C.F., Rakovan, J., Sommer, A., and M.E. Brueseke, 2001, Dickthomssenite, $Mg(V_2O_6) \cdot 7H_2O$, a new mineral species from the Firefly-Pigmy mine, Utah: Descriptive mineralogy and arrangement of atoms: *The Canadian Mineralogist*, 39, 1691-1700

NON PEER-REVIEWED CONFERENCE PROCEEDINGS AND REPORTS (*=student mentee)

- Contributed to National Academies of Sciences, Engineering, and Medicine. 2021. *America's Geoh heritage II: Identifying, Developing, and Preserving America's Natural Legacy: Proceedings of a Workshop*. Washington, DC: The National Academies Press., 47p. <https://doi.org/10.17226/26316>
- Riding, K.A., Peterman, R.J., Guthrie, S., Brueseke, M., Mosavi, H., Daily, K., 2017, Environmental and track factors that contribute to abrasion damage: Final report to U.S. Department of Transportation, Federal Railroad Administration. 242p.
- Saunders, J.A., Kamenov, G.D., Mathur, R., Shimizu, T., and Brueseke, M.E., 2013, Transport and deposition of metallic nanoparticles and the origin of bonanza epithermal ores: *Biennial SGA Proceedings*, Uppsala, Sweden, August, 2013
- Hart, W.K. and M.E. Brueseke, 1999, Analysis and Dating of Volcanic Horizons from Hagerman Fossil Beds National Monument and a Revised Interpretation of Eastern Glenns Ferry Formation Chronostratigraphy, A Report of Work Accomplished and Scientific Results: Hagerman Fossil Beds National Monument, National Park Service, 37p. NPS Report No.: 1443-PX9608-97-003

NON PEER-REVIEWED BOOK/JOURNAL/OTHER ARTICLES/DATABASES

- Searchable Sketchfab.com rock & mineral catalog, 2020, Andrews, G., Brueseke, M., Himelstein, A, McFarland, R.I. A searchable catalog of 3D digital models hosted on Sketchfab.com. Rock & mineral catalog (Version 1.0) [Data set]. Zenodo. <https://zenodo.org/record/3988525#.YWWzpXlOnBI>
- Why Alaskan summers rock, 2016, Brueseke, M.E. College of Arts and Sciences A & S Letters magazine. Summer 2016.
- Saunders, J.A. and Brueseke, M.E., 2015, How Gold and Silver got into the Owyhee Mountains, in, O'Malley, M, Townsend, D, and Packard, P., eds., *Owyhee Outpost, A Journal of the History of the Owyhee County*. Owyhee County Historical Society Press 46, p. 89-99.

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INVITED WEBSITE CONTRIBUTION (*=student mentee)

Hanson, R.E., Puckett, R.E. Jr., McCleery, Brueseke, M.E., *Bulen, C.L., and Mertzman, S.A. 2011, Cambrian Wichita igneous province in the southern OK rift zone: posted on the IAVCEI large igneous provinces commission website (November 2011 LIP of the month; <http://www.largeigneousprovinces.org/11nov>).

INVITED PRESENTATIONS – Academic conferences (*=student mentee)

Lacroix, B., Kempton, P., and Brueseke, M., 2021, PetCAT-Scan: a new tool for quantitative petrography in the COVID-19 pandemic and beyond: Geological Society of America Abstracts with Programs, v. 53. (Brueseke invited, Lacroix gave talk - session T67. The Lasting Effects of the 2020–2021 COVID-19 Crisis on Geoscience Education: Insights, Problems, and Unanticipated Benefits I).

Trop, J., Brueseke, M., Benowitz, J.A., and Kirby, C.S., 2021, Evolution of magmatism along a flat-slab subduction-transform transition, Wrangell Arc, Alaska-Yukon: Geological Society of America Abstracts with Programs, v. 53.

Invited speaker request for T13. Cenozoic volcanism in the inland Northwestern United States - GSA 2016 Rocky Mountain Section meeting, Moscow, ID, but declined due to prior commitment.

Brueseke, M.E., Ingalls, A.I., and Hames, W.E., 2015, Miocene Rhyolite Volcanism in the Northeastern Great Basin: Spatio-Temporal-Petrogenetic Characteristics and Connection to Basin and Range Extension: Geological Society of Nevada, New Concepts and Discoveries 2015 Symposium.

Brueseke, M.E., Saunders, J.A., Kamenov, G.D., Hames, W.E., 2012, Subduction related volatility of metal(loids), fertile lithosphere, and the implications for mid-Miocene epithermal Au-Ag deposits in the western United States: Geological Society of America Abstracts with Programs, Nov 2012.

Saunders, J.A., Mathur, R., Kamenov, G.D., Brueseke, M., Hames, W., 2012, New Pb- and Cu-isotope data supporting a deep origin of metallic nanoparticles in bonanza epithermal ores of the northern Great Basin, Nevada-Idaho. Geological Society of America Abstracts with Programs, Nov 2012.

*Hasten, Z.E.L. and M.E. Brueseke, 2011, Mid-Miocene volcanism in the Owyhee Mountains (ID): local physical and geochemical characteristics and implications for regional magmatism linked to the inception of the Yellowstone hotspot: Geological Society of America Abstracts with Programs, V.43, p. 651.

Brueseke, M. E., 2011, Extensive middle-Miocene silicic magmatism in northeastern NV: the Jarbidge Rhyolite and its connection to the Cenozoic evolution of the northern Great Basin: Geological Society of America Abstracts with Programs, V.43, p. 4.

*Hasten, Z.E.L., Brueseke, M.E., Hames, W.E., Saunders, J.A., 2011, Petrology and magmatic evolution of the Silver City district, Owyhee Mountains (ID): Geological Society of America Abstracts with Programs, V.43, p. 14.

Saunders, J.A. and M. Brueseke, 2010, Volatility of metal(loids) and the geographic-geochemical zonation of Tertiary epithermal/epizonal ores in western USA: Geological Society of America Abstracts with Programs, V.42, p. 45.

Brueseke, M. and W. Hart, 2010, Early Miocene volcanism along the southeastern margin of the HLP and its relationship to regional tectonomagmatic processes: High Lava Plains Workshop 2010.

Hart, W., Brueseke, M., Wypych A., Shoemaker, K., Bondre, N., Hinterberger T., and E. Short, 2010, Progress toward a comprehensive understanding of late Cenozoic volcanism and crust-mantle evolution in and adjacent to the southeastern portion of the High Lava Plains: High Lava Plains Workshop 2010.

Saunders, J.A. and M.E. Brueseke, 2010, Volatility of metals during subduction-related “distillation” and the geochemistry of ores. *Geochimica et Cosmochimica Acta*, Goldschmidt Conference Abstracts 2010, A913.

Brueseke, M.E., Saunders, J., and W. Hames, 2009, Mid-Miocene magmatism and mineralization in the northern Great Basin and Oregon Plateau: the link between bonanza epithermal ore deposits and the Yellowstone hotspot, Geological Society of America Abstracts with Programs, V.41, p. 415.

*Callicoa, J. and M.E. Brueseke, 2009, Mid-Miocene Volcanism in Northeast Nevada: Spatial, Chemical, and Chronologic Significance of the Jarbidge Rhyolite, Geological Society of America Abstracts with Programs, V.41, p. 298.

Brueseke, M.E., 2008, Understanding the evolution of magmas via multiple data types: a case study of the Santa Rosa-Calico volcanic field, NV. On the cutting edge “teaching petrology and structural geology in the 21st century” workshop, October 2008, Houston, TX.

Brueseke, M.E., Hart, W.K., and K.A. Shoemaker, 2004, Re-evaluating the “Owyhee-Humboldt” eruptive center: Relationships between voluminous middle Miocene silicic volcanism and the Owyhee Plateau: Geological Society of America Abstracts with Programs, v. 36, p. 97.

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CURRICULUM VITAE

- Hart, W.K., and M.E. Brueseke, 2004, Eruptive diversity and styles of silicic volcanism in the mid-Miocene Santa Rosa-Calico volcanic field, northern Nevada: Geological Society of America Abstracts with Programs, v. 36, p. 11.
- Brueseke, M.E. and Hart, W.K., 1999, Stratigraphy and whole-rock chemistry of mid-Miocene lava flows in the vicinity of Steens MT, Southeastern Oregon: Geological Society of America Abstracts with Programs, Rocky Mountain Section, v. 31, p. 5.
- Hart, W.K., and Brueseke, M.E., Renne, P.R., and H.G. McDonald, 1999, Chronostratigraphy of the Pliocene Glenns Ferry Formation, Hagerman Fossil Beds National Monument, ID: Geological Society of America Abstracts with Programs, Rocky Mountain Section, v. 31, p. 15.

INVITED PRESENTATIONS – Academic institutions/professional non-profit organizations

- Brueseke, M.E., 2021, Geoscience research in Mineralogy/Igneous Petrology. Olathe Geoscience Academy (Olathe North high school, Olathe, KS), 10/6/21.
- Brueseke, M.E., *Karrasch, A., *Endrich, A., 2021, Rising and falling mountains: regional and local controls on the mountains and basins of northwest Wyoming. The Dubois Museum (Fremont County, WY Museums), 7/8/2021.
- Brueseke, M.E., *Downey, A., *Dodd, C., Adams, D., Benowitz, J., 2020, More than just Yellowstone? Lava Mountain and other recent volcanism in the Dubois, WY area. The Dubois Museum (Fremont County, WY Museums), 8/6/2020.
- Brueseke, M.E., 2020, Investigating the #lostarc: geologic constraints on ~30 Million years of diachronous magmatism along an arc-transform junction, Wrangell Arc, southern Alaska. *Scheduled for April 2, Oklahoma State University, but cancelled due to coronavirus pandemic.*
- Brueseke, M.E., 2019, 16 to 14 million year old gold and silver deposits in the northern Great Basin (U.S.A.): epithermal bonanza ores linked to the Yellowstone hotspot. Topeka Gem and Mineral Society, 10/31/19.
- *Fenner, E. and Brueseke, N., 2019, Field evidence for the paragenesis of the Miocene Milestone Hotspring Sinter. Topeka Gem and Mineral Society, 10/31/19.
- Brueseke, M.E., 2019, Investigating the #lostarc: geologic constraints on ~30 Million years of diachronous magmatism along an arc-transform junction, Wrangell Arc, southern Alaska. Kansas State University, 9/17/19.
- Brueseke, M.E., 2019, Investigating the #lostarc: geologic constraints on ~30 Million years of diachronous magmatism along an arc-transform junction, Wrangell Arc, southern Alaska. West Virginia University, 3/8/19.
- Brueseke, M.E., 2018, Investigating the lost arc: geologic constraints on ~29 million years of continuous magmatism along an arc-transform junction, Wrangell arc, Alaska. Wichita State University, 2/16/18.
- Benowitz, J., Davis, K.N., Brueseke, M.E., Trop, J., Layer, P.W., 2017, Investigating the lost volcanic arc: Wrangell-St. Elias National Park Alaska. Wrangell Mountains Center, 8/3/17.
- Brueseke, M.E., 2016, Understanding links between volcanism and plate tectonics in Wrangell St. Elias, National Park, Alaska. Topeka Gem and Mineral Society, 4/22/16.
- Brueseke, M.E., 2015, The Yellowstone Plateau volcanic field: what makes it super? KSU Chapter Sigma Xi, Manhattan, KS science café, 10/13/15.
- Brueseke, M.E., 2013, Subduction related volatility of metal(oids) and the implications for Mid-Miocene epithermal Au-Ag deposits in the northern Great Basin (U.S.A.). Miami University, Department of Geology and Environmental Earth Science.
- Brueseke, M.E., 2010, Mid-Miocene magmatism and mineralization in the Pacific Northwest (USA): bonanza epithermal ore deposits, the Yellowstone hotspot, and Laramide subduction. Kansas State University, Department of Geology.
- Saunders, J.A., and Brueseke, M.E., 2010, The Case for the Mantle-Epithermal Connection in Western USA. Denver Region Exploration Geologists' Society.
- Brueseke, M.E., 2010, Geochronology (& inferences) of unobservable Earth processes, K-State EIDRoP GK-12 Program Summer Institute.
- Brueseke, M.E., 2010, Mid-Miocene magmatism on the Oregon Plateau: the "birth" of the Yellowstone hotspot, Auburn University, Department of Geology and Geography.
- Brueseke, M.E., 2010, The Yellowstone volcanic field: the formation and behavior of a voluminous magmatic system, Auburn University, Department of Geology and Geography.

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CURRICULUM VITAE

- Brueseke, M.E., 2009, Mid-Miocene Magmatism and Mineralization in the Northern Great Basin & Oregon Plateau, Kansas Geological Society.
- Brueseke, M.E., 2009, More Than Just McDermitt: Temporal-spatial Relationships of Mid-Miocene Magmatism on the Oregon Plateau, Department of Geology, University of Kansas.
- Brueseke, M.E., 2008, Petrogenesis of a compositionally diverse volcanic field: implications for the inception of the Yellowstone hotspot, University of Nebraska-Lincoln, Department of Geosciences (I declined this presentation due to a scheduling conflict).
- Brueseke, M.E., 2008, Mid-Miocene Magmatic System Development in the Northwestern United States, Southern Methodist University, Department of Earth Sciences.
- Brueseke, M.E., 2007, Mid-Miocene Magmatic System Development in the Northwestern United States, Fort Hays State University Department of Geosciences.
- Brueseke, M.E., 2006, Mid- Mid-Miocene Magmatic System Development in the Northwestern United States, Illinois State University, Department of Geology-Geography.
- Brueseke, M.E., 2005, North America's sleeping giant: The past, present, and future of Yellowstone Volcano, Eastern Illinois University (Earth Science week keynote speaker).

CONTRIBUTED PRESENTATIONS – Academic conferences (*=student mentee)

- *Endrich, A., Brueseke, M., *Walters, B.J., and *Karrasch, A., 2021, Petrogenesis of Cenozoic basalts in the Centennial Valley and vicinity in SW Montana: Out-of-sequence Snake River plain basalt eruptions north of the eastern Snake River plain?: Geological Society of America Abstracts with Programs, v. 53.
- *Karrasch, A., Brueseke, M., and Adams, D.C., 2021, New bulk rock geochemical data for <10 Ma volcanism in Jackson Hols and the upper Wind River basin, WY: comparative geochemistry to Snake River plain-Yellowstone basalts and petrogenetic implications: Geological Society of America Abstracts with Programs, v. 53.
- Brueseke, M., Benowitz, J., and Miggins, D.P., 2021, Newly recognized monogenetic volcanism in south-central Alaska (U.S.A.): the Maclaren River volcanic field and implications for the architecture of the subducting Yakutat slab: Geological Society of America Abstracts with Programs, v. 53.
- Brueseke, M.E., *Green, S.M., *Endrich, A., *Walters, B.J., *Fenner, E.R., *Karrasch, A.K., and Benowitz, J.A., 2021, Off-track Yellowstone hotspot basalt volcanism north of the eastern Snake River plain: physical and chemical constraints on a monogenetic volcano in the Centennial Valley, Montana: Geological Society of America Abstracts with Programs, v. 53.
- Andrews, G., Isom, S., Brueseke, M., Labishak, G., Pettus, H., and *Gunzleman, C., 2021, Getting to grips with untouchable samples: online 3D geological specimen models on Sketchfab.com: Geological Society of America Abstracts with Programs, v. 53.
- Brueseke, M.E., *Manselle, P., Trop, J.M., Benowitz, J.A., Snyder, D.C., and Hart, W.K., 2020, Geochemical and stratigraphic analysis of the Chisana formation, Insular terranes, eastern Alaska: early Cretaceous magmatism and tectonics along the northern Cordilleran margin: Geological Society of America Abstracts with Programs, v. 52.
- *Fenner, E, Brueseke, M.E., Deatherage, A., 2020 (postponed to 2022), Paragenesis and geochemistry of the Miocene Milestone sinter, Silver City district, Owyhee County, Idaho: implications for sinter-hosted epithermal Au-Ag deposits: Geological Society of Nevada, Vision for Discovery: Geology and ore deposits of the Basin and Range, 2022.
- *Fenner, E, Brueseke, M.E., Deatherage, A., 2019, Field constraints on the paragenesis of a mid-Miocene sinter-hydrothermal vent complex, Silver City District, Owyhee Mountains, ID: American Exploration & Mining Association 2019 annual meeting, 12/4/19.
- *Motolai, G. and Brueseke, M.E., 2019, Change of saturated soil volume due to the freeze thaw cycle: K-State Undergraduate Research Symposium: Undergraduate research experience for all, Dec. 10, 2019 (Inaugural symposium and due to COVID-19 pandemic, the only one thus far at K-State).
- *Morter, B.K., Brueseke, M.E., Benowitz, J.A., Kirby, C.S., Trop, J.M., Davis, K, and Layer, P.W., 2019, What lies beneath the ice? Using the geochemistry and geochronology of modern river clasts to decipher the evolution of a glaciated volcanic arc (Wrangell Arc, Alaska, UA): Geological Society of America Abstracts with Programs, v. 51.
- Kempton, P.D., Brueseke, M.E., Rogers, K, 2019, The mystery of kimberlites in Kansas: Geological Society of America Abstracts with Programs, v. 51.

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CURRICULUM VITAE

- Rogers, K., Kempton, P.D., Brueseke, M.E., and Adam, C., 2019., In situ LA-ICP-MS trace element data on perovskite: implications for original melt compositions from kimberlites in Kansas: Geological Society of America Abstracts with Programs, v. 51.
- Cole, B.G., Andrews, G.D.M., Brown, S.R., and Brueseke, M., 2019, Grain size and shape characteristics of xenocrysts in the Masontown (SW Pennsylvania) and Stockdale (NE Kansas) kimberlites: insights from optical microscopy and computed X-ray tomography: Geological Society of America Abstracts with Programs, v. 51.
- Brueseke, M.E., and *Martin, D.A., 2019, Glass and crystal chemistry from Miocene Jarbidge rhyolite lavas (Nevada, USA): constraints on crystal-rich rhyolite petrogenesis and effusive volcanism: Geological Society of America Abstracts with Programs, v. 51.
- *Wierman, C., and Brueseke, M.E., 2019, Copper partitioning in mid-Miocene Steens Basalt lavas from southeastern Oregon (USA): Implications for Cu behavior in mafic magmas: Geological Society of America Abstracts with Programs, v. 51.
- Rogers, K., Kempton, P.D., Brueseke, M.E., and Adam, C., 2019, A petrographic and geochemical analysis of off-craton kimberlites from Riley and Marshall County, Kansas (USA): Geological Society of America Abstracts with Programs, v. 51.
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- Study unearths new information on age, activity of Alaska's Wrangell volcanic belt, 2018, Bohn, Beth, Phys.org, 12/19/18, <https://phys.org/news/2018-12-unearths-age-alaska-wrangell-volcanic.html>
- Why Alaskan summers rock, 2016, Brueseke, M.E. College of Arts and Sciences A & S Letters magazine. Summer 2016.
- Researchers of the Lost Arc, 2016, Szentkeresztiova, K., and Williams, A. May, 17, 2016. https://www.youtube.com/watch?v=cJztNfBTkpo&feature=em-subsub_digest
- Rock Stars, 2016, Hancock, Sarah Caldwell. Seek: Vol. 6: Iss. 1. Seek is the bi-yearly KSU research magazine.
- Geoscience jobs down in Kansas, prospects higher in other states. The Collegian (KSU student newspaper). Interview of M. Brueseke, published 12/1/2015.
- Field Notes: The mysterious Wrangells offer a clue into Earth's past. Fairbanks NewsMiner (online and in print) article written by Paul Layer discussing our group's work in the Wrangell Mountains (AK), 7/14/2015. This was also disseminated via the UAF-Fairbanks website and in many other newspapers across Alaska, as well as via social media (e.g., NPS Wrangell St. Elias NP Facebook page, Twitter, etc.).

MATTHEW E. BRUESEKE

CURRICULUM VITAE

Diamonds in Kansas? Maybe. KSN.TV (ksn.com- Wichita, KS television station). Interview of M. Brueseke discussing Riley County, KS kimberlites published 5/13/2013.

PROFESSIONAL ACTIVITIES

Member

Geological Society of America (1994 - present); American Geophysical Union (1998 - present); Sigma Xi (1999 - present); The Geochemical Society (2005 - present); National Association of Geoscience Teachers (2005 - present); International Association of Volcanology and Chemistry of the Earth's Interior (2006 - present); IAVCEI Commission on Collapse Calderas (2007-present); Society of Economic Geologists (2008 - present); Mineralogical Society of America (2009 - present); The International Association for Geoscience Diversity (2019 - present).

Referee for the Following Funding Agencies/Journals/Publishing Companies

The National Science Foundation (both Petrology/Geochemistry and Tectonics divisions), Deutsche Forschungsgemeinschaft (German Research Foundation), U.S. Department of Agriculture – Small Business Innovation Research Program (Mineral exploration technique proposal), Nature Geoscience, Geology, GSA Bulletin, Lithos, Earth Science Reviews, Economic Geology, Geological Magazine, Bulletin of Volcanology, Journal of Geoscience Education, Journal of Volcanology and Geothermal Research, Geosphere, Geological Society of America Special Paper, Geological Society of America Field Guides, Prentice Hall, Central European Journal of Geosciences, Brooks-Cole Publishing, Cambridge Press, Pearson Publishing Co.

Symposia/Field Trip Leadership

- 2021*: Session Co-Convener, From the Afar Rift to Alaskan Arcs (and the Oregon Plateau in between): Honoring the Career and Contributions of William K. Hart T21 (2021 GSA Annual Meeting, Portland, OR).
- 2021*: Field trip leader, “Torrey Canyon Geology Adventure Trek”, 7/9/2021, Trip run through The Dubois Museum (WY) and focused on public geological outreach <https://fremontcountymuseums.com/event/torrey-canyon-geology-adventure-trek>.
- 2020-21*: Session Co-Convener, Ultramafic and mafic magmatism T16 (2020 GSA combined South-Central and North-Central sections meeting, virtual).
- 2020-21*: Session Co-Convener, Granites and Rhyolites as a Record of Crustal Magmatic Processes T15 (2020 GSA combined South-Central and North-Central sections meeting, virtual).
- 2020*: Field trip leader, “Volcanic Geology of the Dubois Area Trek”, 8/7/2021, Trip run through The Dubois Museum (WY) and focused on public geological outreach <https://duboismuseum.org/event/dubois-museum-volcanic-geology-of-the-dubois-area-trek/>
- 2018-19*: Session Co-Convener, Mafic and ultramafic magmatism in the mid-continent and beyond T9 (2019 GSA combined South-Central, North-Central, Rocky Mountain sections supermeeting, Manhattan, KS).
- 2018-19*: Session Co-Convener, Rhyolite/granite magmatism T10 (2019 GSA combined South-Central, North-Central, Rocky Mountain sections supermeeting, Manhattan, KS).
- 2018-19*: Co-field trip leader for Windows into the Cretaceous Mantle of the North American Mid-Continent—Kimberlites of Riley County. (2019 GSA combined South-Central, North-Central, Rocky Mountain sections supermeeting, Manhattan, KS).
- 2016*: Session Co-Convener, Recent advances in understanding magmatism along and within the northern North American Cordillera T154 (2016 GSA Annual Meeting, Denver, CO).
- 2016*: Co-field trip leader for Mineral deposits and geology of the Silver City mining district and Owyhee Mountains, southwestern Idaho (2016 GSA Annual Meeting; trip was cancelled).
- 2015*: Session Co-Convener, Recent advances in the geological evolution of the southern Oklahoma Aulacogen T5 (2015 GSA South-central Meeting, Stillwater, OK).
- 2014*: Co-Convener, Igneous rocks of the southern Oklahoma Aulacogen, Oklahoma Geological Survey Field Forum (March 8-9, 2014).
- 2013*: Session Co-Convener, Recent advances and applications of isotope geochemistry and geochronology to ore deposit studies T98 (2013 GSA Annual Meeting, Denver, CO).

MATTHEW E. BRUESEKE

CURRICULUM VITAE

- 2012: Session Co-Convener, Subduction-related mantle preparation and subsequent magmatism and ore genesis T38 (2012 GSA Annual Meeting, Charlotte, NC).
- 2011: Session Co-Convener, Recent advances in studies of large-volume silicic volcanism: stratigraphy, architecture, evolution, T25 (2011 GSA Annual Meeting, Minneapolis, MN).
- 2011: Co-field trip leader for Timing, distribution, amount, style, and causes of Cenozoic extension, northern Great Basin (2011 GSA Rocky Mountain/Cordilleran section meeting, May 20-23).

Other Service/Development/Positions

- 2019: Skype-a-scientist presenter (K-12 classes)
- 2018-present: Review Editor, *Frontiers in Earth Science – Petrology*
- 2018-2019: Guest Editor (with Jim Saunders), *Minerals* Special Issue "Application of New Geochemical Analytical Techniques to the Understanding of the Genesis of Epithermal Au-Ag Deposits"
- 2018-2019: Organizing Committee Member and Exhibits Chair, *combined GSA South-Central, North-Central, and Rocky Mountain sections super meeting (March 2019, Manhattan, KS)*
- 2016- 2018: Member, GSA-MGVP (Geological Society of America - Mineralogy, Geochemistry, Volcanology, Petrology division) early career award committee
- 2015 - 2019: Member, GSA Annual Meeting Joint Technical Program Committee
- 2015 - 2019: Geochemical Society liaison to the Geological Society of America
- 2015 - 2019: Member, Geochemical Society program committee
- 2015 - 2019: Member, Kansas Geological Survey geologic mapping advisory committee
- 2012 - 2018: Guest editor (with Graham Andrews and Ben Ellis), *Geosphere* Themed Issue: Cenozoic Tectonics, Magmatism and Volcanic Stratigraphy of the Snake River Plain–Yellowstone Region (SRP–Y) and Adjacent Areas
- 2012 - 2016: At large Executive Committee member and Secretary, Sigma Xi KSU Chapter
- 2011: Session Judge for student posters, Joint GSA Rocky Mountain/Cordilleran section meeting (May)
- 2011: Participant, NSF sponsored "Science: Becoming the Messenger" workshop (January)

ACADEMIC SERVICE

- 2021: External promotion reviewer, Texas Tech U. (KSU)
- 2019: External tenure reviewer, West Virginia U. Dept. of Geology and Geography (KSU)
- 2018: External tenure reviewer, U. Arkansas Dept. of Geosciences (KSU)
- 2018-2020: Chair, Student Affairs subcommittee; Graduate council (KSU)
- 2018-present: Member, Undergraduate curriculum committee – Dept. of Geology (KSU)
- 2018-present: Member, KBOR Graduate program review committee – Dept. of Geology (KSU)
- 2018-present: Member, Graduate program strategy committee – Dept. of Geology (KSU)
- 2017-present: Member, Field Camp committee (KSU)
- 2016-present: Elected Member, Graduate Council (KSU); re-elected in 2019 for a three-year term.
- 2015 - 2016: Member, Instructor search committee (KSU)
- 2015 - 2016: Member, Solid earth geophysics/Basin fluid modeling search committee (KSU)
- 2014 - 2015: Member, Carbonate Sedimentology search committee (KSU)
- 2014 - 2018: Member, Geology Curriculum committee (KSU)
- 2014 - 2015: Chair, Structural Geology search committee (KSU)
- 2012- 2013: Member, Geology Department Head search committee (KSU)
- 2011 - 2013: Department of Geology webmaster (KSU)
- 2011 - 2014: Geology representative to K-State EIDRoP GK-12 program (KSU)
- 2010 - 2012: Member, Environmental Geobiology faculty search committee (KSU)
- 2010 - 2015: Member, University Library Committee (KSU)
- 2009 - 2016: Organized departmental activities for University-wide open house (KSU)
- 2009 - 2016: Organized departmental activities for majors fair (KSU)
- 2009 - 2011: GPS program faculty mentor (KSU)
- 2008 - 2017: Faculty Advisor, Williston Geology Club (KSU)
- 2008 - 2015: Chair, Departmental Recruitment Committee (KSU)
- 2007 - present: Geological Society of America campus representative (KSU)
- 2007 - present: Faculty Academic Advisor (KSU)
- 2007 - present: Mineral/rock identification for general public (KSU)

MATTHEW E. BRUESEKE

CURRICULUM VITAE

2007 - present: Dept. Rep. at Geol. Society of America graduate student recruitment booth (KSU)
2007 - present: Dept. representative at academic majors fair (KSU)
2007 - 2008: Dept. representative at University-wide open house (KSU)
2007 - 2008: Faculty Mentor, Campus Internship Program (KSU)
2007 - 2008: Coordinator, Structural Geology/Tectonics faculty search (KSU)
2007 - 2008: Coordinator, K-State Geology Department seminar series (KSU)
2005-06: Guest lecturer, Department of Geology and Geography (EIU)
2005: Member, Peer institutions and competitors committee (EIU)
2004 - 2005: Department representative at accepted student open houses (Miami University; MU)
1997 - 2005: Host, for prospective graduate students (MU)
1997 - 2005: Substitute lecturer for Dr. William K. Hart (MU)
1997 - 2005: Guide, local geological field trips for public outreach (MU)
2004: Graduate student member, Geophysics Assistant Professor search committee (MU)
2004: Judge, Miami University Science Fair (MU)
1998 - 2003: Dept. Representative at Geol. Society of America graduate student recruitment booth (MU)
2001: Judge, Miami University Science Fair (MU)
2000 - 2001: Graduate student representative to the faculty (MU)
1997 - 1998: Graduate student representative to the faculty (MU)
1996 - 1997: President, Miami University Geological Society (MU)
1995 - 1996: Treasurer, Miami University Geological Society (MU)

OTHER SKILLS

National Outdoors Leadership School wilderness first aid certification (2019-present). Proficiency/experience with MS-Office Suite, CorelDraw/Photo-Paint/Adobe Illustrator & related graphics software, ESRI ArcGIS, course maintenance software for on-campus and online teaching efforts, image reduction and interpretation for remote sensing software and aerial imagery, worldwide web page creation and maintenance, and college Spanish coursework equivalent to two years of study. I also received the ESRI ArcGIS I Certification. In addition to the analytical skills and instrumentation used during my research and time spent as a Research Associate (e.g., TIMS, ICP-MS/DCP-AES, etc.), I have experience with powder X-ray diffraction (KSU), hand-held XRF (KSU), Raman spectroscopy (KSU), fluid-inclusion work (KSU), reflected light microscopy (KSU), electron microprobe analyses and imaging (KSU and earlier), LA-ICP-MS analyses (KSU), and thin section making.

APPLICABLE EMPLOYMENT

1995 - 1996: Geotechnical Lab Technician: Shilts, Graves, and Associates, South Bend, IN. Hired for field soil sampling of Quaternary glacial sediment & other geologic material by split spoon-hollow stem drilling and hand auguring methods. I also characterized and tested sediment, concrete, asphalt, and other materials for regional engineering and environmental work, by both laboratory and field-based methods.