

## JACLYN S. BAUGHMAN – Curriculum vitae

Earth and Oceanographic Science  
Bowdoin College  
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**Bowdoin College**, Brunswick, ME

July 2018 – Present

Visiting Assistant Professor, Solid Earth

Department of Earth and Oceanographic Science

### **EDUCATION**

**University of Colorado Boulder**, Boulder, CO

2013 – June 2018

Ph.D, Geological Sciences

Thesis: *Bridging high and low temperature thermal histories across the Kaapvaal craton, Southern Africa from advances in titanite and zircon (U-Th)/He thermochronology*

Advisor: Dr. Rebecca Flowers

**Colgate University**, Hamilton, NY

2009 – 2013

A.B., Geology, summa cum laude

Senior Honors Thesis: *Petrographic, EBSD and thermochronologic evidence for two-stage deformation within the Harcuvar mountains: Implications for core complex development*

Advisor: Dr. Martin Wong

### **PUBLICATIONS**

**Baughman, J.S.** and Flowers, R.M. (2020) Mesoproterozoic burial of the Kaapvaal craton, southern Africa during Rodinia supercontinent assembly from (U-Th)/He thermochronology. *Earth and Planetary Science Letters*, 13p.

<https://doi.org/10.1016/j.epsl.2019.115930>

**Baughman, J.S.** and Flowers, R.M. (2018) Deciphering a 2 Gyr-long thermal history from a multichronometer (U-Th)/He study of the Phalaborwa carbonatite, Kaapvaal craton, South Africa. *Geochemistry, Geophysics, Geosystems* 19(5), 1581-1594.

<https://doi.org/10.1029/2017GC007198>

**Baughman, J.S.**, Flowers, R. M., Metcalf, J.R., and Dhansey, T. (2017) influence of radiation damage on titanite Hediffusion kinetics. *Geochimica et Cosmochimica Acta* 205, 50-64. <https://doi.org/10.1016/j.gca.2017.01.049>

### **PUBLICATIONS in PREPARATION**

**Baughman, J.S.** and Flowers, R.M. (in prep) The far-reaching thermal effects of Pan-African tectonism on the Kaapvaal craton margin.

\*Basler, L., **Baughman, J.S.**, Fame, M., Haproff, P., (in prep) Syn- and post-Alleghanian exhumation in the Central Appalachians Mountains of Virginia and West Virginia from zircon (U-Th)/He thermochronology. *To be submitted to Geosphere*

\*Denotes undergraduate student advisee

### **HONORS, GRANTS and AWARDS**

2020 Bowdoin Gibbons Fellowship: Project entitled *Increasing Accessibility and Spatial Reasoning in the Earth Sciences using Virtual Reality* (\$3,600)

2019 Bowdoin Faculty Research Development Grant: Project entitled *Is Northern Appalachian mountain uplift driven by hot, buoyant mantle?* (\$4,000)

2019 Bowdoin Faculty Research Development Grant: Project entitled *When and why the Adirondack Mountains of New York got high* (\$4,000)

2019 Bowdoin Gibbons Fellowship: Project entitled *Leveraging Python and MATLAB to enhance quantitative reasoning and conceptual understanding in the earth sciences* (\$4,500)

2017 United Government of Graduate Students CU Boulder Travel Grant

2017 CU Boulder Dept. of Geological Sciences Travel Grant

2016 NSF professional development grant, supplement to EAR-0951518 (\$35,000)

2016 GSA-IGC Travel grant (\$3,250)

2015 NSF GRFP Honorable Mention

2014-2016 CU Boulder Undergraduate Student Mentorship grant

2013 Phi Beta Kappa, Colgate University

2012 USGS/NAGT Cooperative Field Training Program

### **INVITED TALKS**

Colby College, Maine, February 2020

Westminster College, Utah, February 2020

Sacramento State, California, February 2020  
Wellesley College, Massachusetts, December 2019  
Bates College, Maine, February 2019  
Bowdoin College, Maine, February 2018

### **ABSTRACTS and PRESENTATIONS**

- Baughman, J.S.**, Fame, M., \*Basler, L., Haproff, P., (2020) Spatially Variable Burial and Exhumation History of the Central Appalachian Mountains from Zircon (U-Th)/He Thermochronology. NE/SE GSA Regional Meeting 2020, abs# 52-2(oral).
- \*Basler, L., \*Shona, O., **Baughman, J.S.**, (2019) Constraining the mid to low temperature exhumation history of the Central Appalachian Mountains using zircon (U-Th)/He thermochronology. AGU Annual Meeting 2019, (poster).
- Baughman, J.S.**, Fame, M., Haproff, P., \*Basler, L., \*Shona, O. (2019) Exploring the extent of Cenozoic Central Appalachian exhumation using targeted low-temperature apatite (U-Th)/He thermochronology. GSA Annual Meeting 2019, abs# 63-5(oral).
- Baughman, J.S.** and Flowers, R.M. (2018) Substantial Proterozoic Burial and Exhumation of the Kaapvaal Craton from (U-Th)/He Thermochronology and Implications for Cratonic Stability. *AGU Fall meeting 2018*, abs# 426204
- Baughman, J.S.** and Flowers, R.M. (2017) Deciphering the post-cratonization history of the Kaapvaal craton, South Africa from titanite and zircon (U-Th)/He thermochronology. *AGU Fall meeting 2017*, abs# 225484 (poster).
- Flowers, R.M, **Baughman, J.S.**, Johnson, J.E. and Metcalf, J.R (2017) The expanding temperature sensitivity range of (U-Th)/He thermochronology from improved understanding of the “Big Three” (apatite, zircon and titanite): Approaches and examples. *GSA Annual Meeting 2017*, abs# 352-6 (poster, invited).
- Baughman, J.S.** and Flowers, R.M. (2017) Deciphering the post-cratonization history of the Kaapvaal craton, South Africa from titanite and zircon (U-Th)/He thermochronology. *AGU Fall meeting 2017*, abs# 225484 (poster).
- Baughman, J.S.** and Flowers, R.M. (2016) Multichronometer (U-Th)/He study of the Phalaborwa carbonatite complex, South Africa to decipher mineral closure temperatures and Kaapvaal craton thermal evolution. *GSA Annual Meeting 2016*, abs# 27-12 (oral).
- \*Stoner, R.K., **Baughman, J.S.**, Flowers, R.M., Kelley, N.M. and Metcalf, J.R. (2016) (U-Th)/He dating to improve interpretations of thermal histories and crustal processes. *GSA Annual Meeting 2016*, abs# 27-10 (oral).

- Metcalf, J.R., **Baughman, J.S.** and Flowers, R.M. (2016) Evaluating a new, rapid zircon and titanite dissolution method for (U-Th)/He thermochronology. *GSA Annual Meeting 2016*, abs# 324-9 (poster).
- Baughman, J.S.** and Flowers, R.M. (2016) Temperature sensitivities of non-traditional (U-Th)/He thermochronometers and thermal evolution of the Phalaborwa carbonatite complex, Kaapvaal craton, South Africa. *35<sup>th</sup> IGC*, Cape Town, South Africa, abs# 3298 (oral).
- Tappe, S., \*Marokane, M.M., **Baughman, J.S.**, Flowers, R.M., Smart, K.A., Eglinton, B., Frei, D., Joy, S., (2016). India's fast Mesozoic drift linked to continental mantle lithosphere delamination: New insights from (U-Th)/He thermochronology of Dharwar craton kimberlites, *35<sup>th</sup> IGC*, Cape Town, South Africa, abs 3924 (oral).
- Baughman, J.S.**, Flowers, R.M., Dhansay, T., Metcalf, J.R. and \*Stoner, R. (2015) Influence of radiation damage on titanite (U-Th)/He dates from the Kaapvaal Craton, southern Africa. *GSA Annual Meeting 2015*, abs# 144-6 (poster).
- Flowers, R.M., **Baughman, J.S.**, Johnson, J.E., Landman, R.L., Stanley, J.R., Weisberg, W.R. and Metcalf, J.R. (2015) Expanding the temperature sensitivity range and applicability of the (U-Th)/He system: some examples. *GSA Annual Meeting 2015*, abs# 104-1 (oral, invited).
- \*Marokane, M., Tappe, S, **Baughman, J.S.**, Flowers, R.M., Smart, K.A. and Joy, S. (2015) (U-Th)/He thermochronology of Dharwar craton kimberlites, Penninsular India: Toward a better understanding of coupled deep Earth-surface processes. *Igneous Metamorphic Petrology Study Group Annual meeting 2015*, Pretoria, South Africa.
- Baughman, J.S.**, Flowers, R.M. and Dhansay, T, (2014) Proterozoic stability of the Kaapvaal craton from titanite (U-Th)/He thermochronology and the strong influence of radiation damage on this underutilized thermochronometer, *AGU Fall meeting 2014*, abs# V42B-03 (oral).
- Wong, M.S., Singleton, J., **Baughman, J.S.** and Bunting K.C. (2013) Evidence for Miocene reactivation of a Late Cretaceous to Early Tertiary shear zone in the Harcuvar and Buckskin-Rawhide metamorphic core complexes, Arizona. *GSA Annual Meeting 2013*, abs# 217-9 (oral).
- MacNamee, A., **Baughman, J.S.** and Selleck, B.W. (2011) Chemistry and mineralogy of Devonian strata: A preliminary study to determine possible beneficial use of well cuttings. *GSA Northeastern and North-Central Joint Meeting 2011*, abs# 13-31 (poster).

\*Denotes undergraduate student advisee

## **EXPERIENCE**

### ***Present Research:***

Bowdoin College: Visiting Assistant Professor (2018 – Present)

- Assessing the timing, extent, and rate of post-orogenic Appalachian burial and exhumation using (U-Th)/He thermochronology
- Paleozoic-Cenozoic evolution of the Limpopo Belt and Basin, South Africa

### ***Previous Research Experience:***

University of Colorado Boulder: Ph.D. (2013 – 2018)

- Characterization of titanite (U-Th)/He thermochronology
- Temperature sensitivity of non-traditional (baddeleyite, rutile) (U-Th)/He thermochronometers
- Mesoproterozoic burial of the Kaapvaal craton, southern Africa during Rodinia supercontinent assembly from (U-Th)/He thermochronology

Colgate University: Undergraduate Student Researcher (2010 – 2013)

- Metamorphic core complex development: Harcuvar mountains, Arizona
- Marcellus gas shale: Illite crystallinity and sulfide content
- Marcellus gas shale: Beneficial use determination of well-cuttings

United States Geological Survey: Geologist, Menlo Park, CA (2012)

- Uranium contamination and groundwater migration

University of Wollongong: Researcher, Wollongong, Australia (2012)

- Mt Gibraltar anorogenic microsyenite, NSW Australia: Carbonate isotope analysis and pegmatite formation

### ***Teaching Experience:***

Visiting Assistant Professor, Bowdoin College

Field Studies in Structural Geology (Fall 2018)

Geomechanics and Numerical Modeling (Spring 2019, Spring 2020)

Isotope Geochemistry (Spring 2019, Spring 2020)

Investigating Earth – Introductory Physical Geology (Fall 2019)

Instructor of Record, University of Colorado Boulder

Introduction to Geology (130 students, Spring 2018)

Teaching Assistant, University of Colorado Boulder

Structural Geology (Fall 2017)

Introduction to Field Geology (Fall 2013, Spring 2014, Summer 2015)

Teaching Assistant, Colgate University

Techniques in Field Geology (Summer 2013) Logistical and academic support for 6-week field program

### ***Mentorship Experience:***

Undergraduate Honors Thesis Supervisor

- Luke Basler '20 – Bowdoin College
- Ryan Stoner '16 – University of Colorado Boulder, now a PhD student at UCSB.

Undergraduate Research Supervisor

- Luke Basler '20 – Bowdoin College – 2019, 2020
- Rose Saga '22 – Bowdoin College - 2020
- Thais Carrillo '23 – Bowdoin College - 2020
- Shona Ortiz '21 – Bowdoin College - 2019
- Cameron Markovsky '21 – Bowdoin College - 2019
- Ryan Stoner '16 – University of Colorado Boulder – 2015, 2016
- Maggie Marokane – University of the Witwatersrand – 2014

### ***Outreach and Inclusion Experience:***

- 2020 Geoscience Career Lecture Series, Bowdoin College, Brunswick, ME
- 2019 Investigating Earth – Engaging Middle School Audiences, Brunswick, ME  
Community Outreach – coordinated college student presentations and demonstrations to (~80) Middle School Students in the Brunswick and Harpswell, ME areas
- 2017 UNAVCO Professional Development Coordinator, UNAVCO, Boulder, CO  
Instructor for two internship programs housed at the NSF geodetic facility UNAVCO, including RESESS (Research Experiences in Solid Earth Sciences for Students) and GeoLaunchpad, which pair underrepresented minority students and community college students, respectively, with intensive earth science research projects.
- 2016 – 2017 Science Communication Symposium Creator and Coordinator, CU Boulder, Boulder, CO
- 2016 RESESS Graduate Assistant, UNAVCO, Boulder, CO  
Support of underrepresented groups in geosciences to promote scientific diversity
- 2014 – 2017 Fieldtrip Coordinator and Guide, UNAVCO and CU Boulder, Boulder, CO  
Planned and led weekend long geo-focused fieldtrip for undergraduate students and interns
- 2013 – 2015 Undergraduate Poster Evaluator, UNAVCO, Boulder, CO

### ***Fieldwork Experience:***

Green Mountains, Vermont (2019)

Central Appalachians, Valley and Ridge, West Virginia (2019)

Kaapvaal Craton, South Africa and Swaziland (summer 2016) – fieldwork and sampling of Barberton region, Limpopo region and central Kaapvaal craton for (U-Th)/He thermochronometry.

Kaapvaal Craton, South Africa (summer 2014) – fieldwork and sampling of Archean basement rock, and alkaline and carbonatite igneous complexes on craton for (U-Th)/He thermochronometry.

Harcuvar metamorphic core complex (January 2013) – mapping, field relationships and sample collection for petrographic, EBSD and thermochronologic analysis.

Naturita, CO, former uranium mine site (July 2012) - water and soil sample collection, tracer tests.

Mt. Gibraltar, NSW, Australia (February 2012) – pegmatite field relationships and carbonate sample collection

CO, UT, ID, WY (June-July 2011) – mapping, structural and geologic development, Colgate University field camp.

Ecuador (March 2010) - volcanic research, hazard mapping, deposit identification and history.

***Laboratory Experience:***

Mineral separation, ICP-MS, noble gas quadrupole mass spec, SEM, EDS, EBSD, Raman spectroscopy, XRD, XRF

**SERVICE**

***National Service:***

Convener of technical session “Topographic and Lithospheric Evolution of Elevated Continental Passive Margins” at GSA Annual Meeting 2020

Reviewer for – National Science Foundation, Geochimica Cosmochimica Acta, Journal of African Earth Sciences

Student representative for Geological Society of America Structural Geology and Tectonics Division (2017-2018).

Primary convener of technical session “Applications of Thermochronology to Understand Crustal Systems” at AGU Fall Meeting 2017.

***University Service:***

Head Tutor for University of Colorado Boulder Dept. of Geological Sciences tutor room (2017-2018)

Geological Sciences graduate student lecture series organizer (2015-2017)

## **PROFESSIONAL ORGANIZATIONS**

International Association for Geoscience Diversity (IAGD)

Geological Society of America (GSA)

American Geophysical Union (AGU)

American Association for the Advancement of Science (AAAS)