

# Dr. Cameron J. Batchelor

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## ■ EDUCATION

University of Wisconsin-Madison, Madison, WI **2018–February 2022**  
**Ph.D., Geoscience, Minor: Geography**  
*Dissertation:* Reconstructing high-resolution paleoclimate for portions of the last 250,000 years from Cave of the Mounds speleothems, *Advisor(s): Dr. Shaun Marcott & Dr. Ian J. Orland*  
Research foci: Geochemistry, paleoclimatology, micro-analytical techniques

University of Wisconsin-Madison, Madison, WI **Fall 2016–2018**  
**M.S. Geoscience**  
*Thesis:* A high-precision U-Th chronology of calcite deposition at Cave of the Mounds, Wisconsin, and its implications for climate and permafrost in the late Pleistocene, *Advisor(s): Dr. Shaun Marcott & Dr. Ian J. Orland*

Appalachian state University, Boone, NC **Fall 2012–December 2015**  
**B.S. Geology in Quantitative Geoscience, Minor in Mathematics**  
*Undergraduate Thesis:* Constraining ages of Late Devonian Extinction Events in the Central Asian Orogenic Belt: U-Pb Geochronology and Igneous Petrology

## ■ PROFESSIONAL APPOINTMENTS

**Postdoctoral Fellow**, “Atmospheric and Geospace Sciences” division of the National Science Foundation **April 2022–present**  
*\*Host Institution: Massachusetts Institute of Technology*

**Research Assistant**, Department of Geoscience, University of Wisconsin-Madison **2016-2017, 2018-2022**

**Teaching Assistant**, Department of Geoscience, University of Wisconsin-Madison **Fall 2017–Spring 2018**

## ■ TEACHING EXPERIENCE

**Guest Lecturer**, College of the Holy Cross (Worcester, MA) “Paleoclimatology” course  
**Fall 2022** – Lecture for: October 25, 2022  
Topic: *Speleothems, Quaternary Paleoclimate*

**Teaching Assistant**, University of Wisconsin-Madison  
**Fall 2017**: Introduction to Geology  
**Spring 2018**: Introduction to Oceanography

**Guest Lecturer**, D.C. Everest High School (Schofield, WI) "A.P. Chemistry" course  
**Fall 2018** – Lecture for: October 19, 2018  
Topic: *Geochemistry & Paleoclimate*

## ■ LABORATORY EXPERIENCE

**McGee Lab for Paleoclimate and Geochronology**, *Massachusetts Institute of Technology* **2022-present**  
Lab PI: Dr. David McGee  
Experience: Uranium-Thorium (U-Th) disequilibrium lab column chemistry

**Wisconsin Secondary Ion Mass Spectrometer (WiscSIMS) Lab**, *University of Wisconsin-Madison* **2018-present**  
Lab PI: Dr. John Valley  
Experience: Micro-analytical ( $\mu\text{m}$ -scale), in-situ stable oxygen isotope ( $\delta^{18}\text{O}$ ) geochemistry

**Optical Image Core Laboratory**, *University of Wisconsin-Madison* **2018-present**  
Lab PI: Lance Rodenkirch  
Experience: Confocal laser fluorescent microscopy

**Isotope Geochemistry Laboratory**, *University Minnesota* **2016-2018**  
Lab PI: Dr. Lawrence R. Edwards  
Experience: U-Th disequilibrium lab column chemistry and the Neptune multi-collector inductively-coupled-plasma mass spectrometer (Neptune MC-ICP-MS)

**Isotope Geochemistry Laboratory**, *University of North Carolina at Chapel Hill* **2013-2016**  
Lab PI: Dr. Drew Coleman  
Experience: U-Th disequilibrium lab column chemistry and the Neptune multi-collector inductively-coupled-plasma mass spectrometer (Neptune MC-ICP-MS)

## ■ FIELD EXPERIENCE

**Field Researcher in Wisconsin caves**, Wisconsin **2016-2022**  
Experience: Worked with the Department of Natural Resources to explore caves around the state of Wisconsin to collect samples (speleothems) for geological research

**Astrostratigraphy field course**, Gubbio, Italy, *4-day field excursion* **Summer 2019**

- New Zealand Geology Field Course**, South Island, New Zealand, **April 2018**  
*12-day field excursion and semester-long course*
- Field assistant for surface exposure dating**, Beartooth Mountains, **Summer 2017**  
 Montana, *10-day field excursion*
- Field camp participant**, Apennine Mountains, Italy, **Summer 2015**  
*6-week field Mapping course run through Appalachian State University*
- Field researcher for the International Geoscience Program (IGCP) 586 & 580**, Belgium, **Fall 2015**  
*10-day field excursion*
- Field researcher for IGCP 586 & 580**, Mongolia, **Summer 2014**  
*14-day field Excursion in the Gobi Desert*

## ■ PUBLICATIONS

*Published:*

5. **Batchelor, C.J.**, Marcott, S.A., Orland, I.J., He, F., Edwards, R.L., 2023, Decadal warmings extended into central North America during the Last Glacial Period. *Nature Geoscience*, Accepted.
4. **Batchelor, C.J.**, Marcott, S.A., Orland, I.J., Kitajima, K., 2022. Late Holocene increase of winter precipitation in mid-continental North America from a seasonally resolved speleothem record: *Geology*. DOI:10.1130/G50096.1
3. **Batchelor, C.J.**, Orland, I.J., Marcott, S.A., Slaughter, R., Edwards, R. L., Zhang, P., Li, X. and Cheng, H., 2019. Distinct permafrost conditions across the last two glacial periods in midlatitude North America. *Geophysical Research Letters*, 46(22), pp. 13318-13326.
2. Suttner, T. J., Kido, E., Ariunchimeg, Ya., Sersmaa, G., Waters, J.A., Carmichael, S.K., **Batchelor, C.J.**, et al., "Conodonts from Late Devonian island arc settings (Baruunhuurai Terrane, western Mongolia). *Palaeogeography, Palaeoclimatology, Palaeoecology* (2019).
1. Carmichael, S. K., Waters, J.A., **Batchelor, C. J.**, Coleman, D. M., Suttner, T. J., Kido, E., ...& Chadimová, L. (2016). Climate instability and tipping points in the Late Devonian: detection of the Hangenberg Event in an open ocean island arc in the Central Asian Orogenic Belt. *Gondwana Research*, 32, 213-231

*In Preparation*

**Batchelor, C.J.**, Marcott, S.A., Orland, I.J., Disparate seasonal climate conditions between the Last Interglacial Period and the Holocene from two mid-continental North American speleothems, *In prep.*

**Batchelor, C. J.**, Marcott, S.A., Orland, I. J., Tan, R. Q., A high-resolution reconstruction of climate during the Penultimate Interglacial Period in central North America from a seasonally resolved speleothem: *In prep.*

## ■ RESEARCH FUNDING

National Science Foundation “Atmospheric and Geospace Science” (AGS) Postdoctoral Fellowship (**\$190,000**) **2021**

National Science Foundation “Paleo Perspectives on Climate Change” (P2C2) grant (**\$180,000**) **2021**

*\*Written in collaboration with Dr. Kaustubh Thirumalai (University of Arizona) and Dr. Jud Partin (University of Texas-Austin)*

Geological Society of America Student Research Grant (**\$840**) **2017**

Mark DeBroder Memorial Scholarship (**\$1600**) **2015**

Explorers Club Youth Explorers Grant (**\$1500**) **2014**

James E. Strickland Geology Scholarship (**\$1000**) **2013**

Charlotte Gem and Mineral Scholarship (**\$1000**) **2013**

## ■ SELECTED ABSTRACTS AND INVITED TALKS

*\*denotes abstract selected as a talk, \*\* denotes invited talk*

**\*\*Batchelor C.J.**, “Reconstructing past climate in subarctic Canada for the last 400,000 years from cave speleothems, *College of the Holy Cross Departmental Seminar, Worcester, MA* **October 2022**

**\*\*Batchelor C.J.**, et al., “Resolving high-resolution paleoclimate variability from subarctic Canada speleothems across three Pleistocene interglacial periods,” *Geological Society of America 2022 Annual Meeting, Denver CO* **October 2022**

**\*\*Batchelor C.J.**, “Resolving high-resolution paleoclimate records from subarctic Canada speleothems across three Pleistocene interglacial periods,” *2022 Comer Climate Conference, virtual.* **September 2022**

**\*\*Batchelor C.J.**, et al., “Late Holocene increase of winter precipitation in midcontinental North America from a seasonally resolved speleothem record,” **June 2022**  
*AMQUA 2022 Biennial Meeting*, Madison, WI.

**\*Batchelor, C.J.**, et al., “Resolving decadal-scale warming events in the interior of North America during the Last Glacial Period,” **December 2021**  
*American Geophysical Union Fall Meeting*, New Orleans, LA, USA.

**\*\*Batchelor, C.J.**, “Reconstructing late Pleistocene seasonal climate in mid-continental North America from relatively slow growing speleothems,” **November 2021**  
*Appalachian State University, Department of Geological and Environmental Sciences*, Boone, NC.

**\*\*Batchelor, C.J.**, “What caves tell us about mid-continental paleoclimate: an important terrestrial archive,” **February 2021**  
*Rowan University, Department of Geology*, Glassboro, NJ.

**\*Batchelor C.J.**, et al., “A high-precision U-Th chronology of calcite deposition at Cave of the Mounds, Wisconsin, and its implications for climate and permafrost in the late Pleistocene”, **October 2018**  
*Geological Society of America North-Central Section*, Ames, IA.

**\*\*Batchelor C.J.**, “What caves tell us about past climate,” **September 2018**  
*The Annual Wisconsin State Bat Festival*; Milwaukee, WI

**\*\*Batchelor C.J.**, “What caves tell us about past climate,” **September 2017**  
*The Annual Wisconsin State Bat Festival*; Ashland, WI

**\*\*Batchelor, C.J.**, “A high-precision U-Th chronology of calcite deposition at Cave of the Mounds, Wisconsin and its implications for climate and permafrost,” **September 2017**  
*Climate, People, and the Environment Program Colloquium (University of Wisconsin-Madison)*, Madison, WI.

## ■ SHORT COURSES AND WORKSHOPS

**Inclusive Mentoring Workshop**, Massachusetts Institute of Technology **May 2022**

**Summer School of Speleothem Science (“S4”), Online** **Spring 2022**

**URGE (Unlearning Racism in the Geoscience) participant** **Fall 2020–Spring 2021**  
**And Pod Leader**, *Online*. (\*16-week curriculum/seminar training).

**The Urbino Summer School in Paleoclimatology (USSP)**, Urbino, **Summer 2019**  
*Italy (3-week course curriculum)*

## ■ PRESS RELEASE/MEDIA

**Featured article for the Medill Master of Science in Journalism Program, in preparation.** \*Writer: Dilprett Raju **Antic. Spring 2023**

**Featured guest speaker, "Under Our Feet" podcast (Episode 6, "Secrets of the Underground.")** \*Podcast creator: Rudy Molinek **Fall 2021**

**Featured photo, front cover of the University of Wisconsin-Madison "College of Letters & Science" magazine: "Black-light image of the oldest stalagmite sample in the Midwest."** **Fall 2020**

**Featured article, University of Wisconsin-Madison "College of Letters and Science" magazine: "What can caves reveal about glaciers?"** \*Article written by: Kelly April Tyrrell **Spring 2020**

**Featured article, "Echolater" newsletter, Volume 8 Issue I: "Wisconsin Caves hold keys to climate 250,000 years ago."** **Spring 2019**

## ■ PROFESSIONAL AND DEPARTMENTAL SERVICE

**Reviewer, Geophysical Research Letters, Commentary** **2022**

**Reviewer, Geophysical Research Letters, Article** **2022**

**Reviewer, Geochronology, EGU** **2022**

**President, Geoscience Graduate Student Association (GGSA), University of Wisconsin-Madison** **Fall 2020–Spring 2021**

**Pod Leader for URGE (Unlearning Racism in the Geosciences), pod: "UW-GGSA" (University of Wisconsin-Geoscience Graduate Student Association)** **Fall 2020–Spring 2021**

**Treasurer, Association for Women Geoscientists (AWG), the University of Wisconsin-Madison Chapter** **Fall 2020–Spring 2021**

**Reviewer, Climate of the Past, EGU** **2020**

**Reviewer, Climate of the Past, EGU** **2020**

**Chair of the Graduate Student Research Symposium, Department of Geoscience, University of Wisconsin-Madison** **Spring 2020**

**Professional Development Chair, GGSA** **Fall 2019-Spring 2020**

**Vice President, AWG, University of Wisconsin-Madison Chapter** **Fall 2019-Spring 2020**

**Reviewer, Geophysical Research Letters, *article*** **2020**

**Public Relations Chair, GGSA** **Fall 2017-Spring 2019**  
*\*Served two consecutive terms*

## ■ AWARDS

**AMQUA Denise Gaudreau Award for Excellence in Quaternary Research** **2022**  
*(\$1000)*

**Editor's Citation for Excellence in Refereeing, *Geophysical Research Letters*** **2020**

**Winner of "Cool Science Image Contest," *image of a speleothem* (\$100)** **2020**

**The Reid Bryson poster contest award, first place (\$750)** **2018**

**Stanley A. Tyler Excellence in Teaching Award, for "Introduction to Geology"** **2017**

**Most Outstanding Geology Major** **2016**

**Appalachian Global Leadership Award** **2015**

**Most Outstanding Mineralogy Student** **2015**

## ■ UNDERGRADUATE RESEARCH MENTEES

**Markey Freudenberg-Puricelli, "Geochemistry of Nahanni Cave Speleothems to explore paleoclimate history of the last 400,000 years"** **2022–present**  
*B.S., Earth, Atmospheric, and Planetary Sciences, class of 2026, Massachusetts Institute of Technology*

**Rui Tan, "Assessing the Crystal Fabrics and Mineralogy of Speleothems from Cave of the Mounds, WI"** **2018–2019**  
*B.S., Geoscience, class of 2019, University of Wisconsin-Madison*

**Olivia Paschall, "Exploring Late Devonian Mass Extinctions and Ocean Anoxia Events in Understudied Paleoenvironments of Asia"** **2014–2015**  
*B.S., Geological and Environmental Science, class of 2018, Appalachian State University*

## ■ OUTREACH AND VOLUNTEERING

**Field Trip Leader for “Weather and Climate” course, Cave of the Mounds WI, Professor: Dr. Michael Notaro (Atmospheric and Ocean Science, University of Wisconsin-Madison) July 2022**

*\*This course was for the “Summer Collegiate Experience” program, which consist of first-generation students*

**AMQUA Field Trip Leader, AMQUA 2022 Annual Meeting, Madison, WI June 2022**

**Leader of Cave of the Mounds staff “Boot Camp,” Cave of the Mounds, Blue Mounds, WI Summers of 2017-2022**

*Description: Worked closely with 20-30 Cave of the Mounds staff to share with them the findings of my research and how they can incorporate these scientific findings to the public during daily cave tours*

**Geology Museum Open House Volunteer, University of Wisconsin-Madison, 800 people in attendance Spring 2019**

**Science Night Volunteer, Falk Elementary School, Madison, WI, 300 people in attendance Spring 2019**

**Field Trip Leader for Geomorphology class, Cave of the Mounds, WI 30 students in attendance Spring 2017**

## ■ PROFESSIONAL MEMBERSHIPS

Association for Women Geoscientists **2018–present**

American Geophysical Union **2017–present**

Geological Society of America **2016–present**