
Tyler Huth

Curriculum Vitae

Washington University
Department of Earth & Planetary Sciences
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RESEARCH INTERESTS

Evolution of climate and ecology in the Quaternary; isotope geochemistry; biogeochemistry of caves, lakes, and soils; development and application of novel paleo-archives and proxies

EDUCATION

2018	Ph.D. Geology and Geophysics	University of Utah, with Thure Cerling
2012	M.S. Geosciences	University of Arizona, with Jay Quade
2010	B.A. Science of Earth Systems	Cornell University

PROFESSIONAL APPOINTMENTS

2021–present Postdoctoral Research Associate, Washington University in St. Louis, Climate and Paleoclimate Laboratory

Supervisor: Bronwen Konecky

2018–2021 Postdoctoral Research Fellow, University of Michigan, Isotopologue Paleosciences Laboratory (IPL)

Supervisors: Benjamin Passey and Naomi Levin

PUBLICATIONS

- Huth T. E.**, Passey B. H., Cole J. E., Lachniet M. S., McGee D., Denniston R., Truebe S., and Levin N. E. (2022). A framework for triple oxygen isotopes in speleothem paleoclimatology. *Geochimica et Cosmochimica Acta*, **319**, 191–219.
- Aron P. G., Levin N. E., Beverly E. J., **Huth T. E.**, Passey B. H., Pelletier E. M., Poulsen C. J., Winkelstern I. Z., and Yarian D. A. (2021). Triple oxygen isotopes in the water cycle. *Chemical Geology*, **565**, 120026.
- Huth T. E.**, Cerling T. E., Marchetti D. W., Bowling D. R., Ellwein A. L., Passey B. H., Fernandez D., Valley J., and Orland I. (2020). Laminated soil carbonate rinds as a

paleoclimate archive: a case study from the Colorado Plateau. *Geochimica et Cosmochimica Acta*, **292**, 227–244.

5. **Huth T. E.**, Cerling T. E., Marchetti D. W., Bowling D. R., Ellwein A. L., and Passey B. H. (2019). Seasonal bias in soil carbonate formation and its implications for interpreting high-resolution paleoarchives: evidence from southern Utah. *JGR Biogeosciences* **124**, 618–632.
4. Marchetti D. W., Anderson L., Donovan J. J., Harris M. S., and **Huth T.** (2018). Fish Lake limnology and Watershed aqueous geochemistry, Fish Lake Plateau, Utah. In Emerman, S. H., Bowen, B., Schamel, S., and Simmons, S. (Eds.), *Geofluids of Utah: Utah Geological Association Publication 47*, 55–74.
3. Hudson A. M., Olsen J. W., Quade J., Guoliang L., **Huth T. E.**, and Hucai Z. (2016). A regional record of elevated Holocene water tables and human occupation from paleowetland deposits of the Yarlung Tsangpo valley, southern Tibetan Plateau. *Quaternary Research* **6**(1), 13–33.
2. **Huth T.**, Hudson A. M., Quade J., Guoliang L., and Hucai Z. (2015). Constraints on paleoclimate from 11.5 to 5.0 ka from shoreline dating and hydrologic budget modeling of Baqan Tso, southwestern Tibetan Plateau. *Quaternary Research* **83**(1), 80–93.
1. Hudson A. M., Quade J., **Huth T.**, Guoliang L., Olsen J. W., and Hucai Z. (2015). Lake-level reconstruction for 2.3–12.8 ka for the Ngangla Ring Tso closed-basin lake system, southwest Tibetan Plateau. *Quaternary Research* **83**(1), 66–79.

Manuscripts in review or late-stage preparation

- Lehmann S. B., Levin N. E., Passey B. H., Hu H., Cerling T. E., Miller J. H., Arppe L., Beverly E. J., **Huth T. E.**, Kelson J. R., Hoppe K. A., Luyt J., and Sealy J. (*in revision*). Triple oxygen isotope distribution in modern mammal teeth and potential geologic applications.
- Huth T. E.**, Cerling T. E., Marchetti D. W., Ellwein A. L., Mahan S., Bowling D. R., and Snell K. (*in prep*). Climate, ecosystem, and geomorphic considerations for interpreting a 40–13 ka soil carbonate record from Rio Mesa, southern Utah, USA.

GRANTS AND FELLOWSHIPS

- 2021** NSF Grants EAR-2051587, EAR-2051585, and EAR-2051548 (grant dates 7/2021–7/2023), \$472,479
“Laminated soil carbonate rinds as a tool for investigating late Quaternary climate-vegetation links”, PIs T.E. Cerling, B.H. Passey, and D.W. Marchetti. I led the conceptual design, writing, and revision of this proposal.
- 2018, 2015, and 2014** Student Research Funds grants, University of Utah, Department of Geology and Geophysics (\$1950 total)
- 2018, 2017, and 2015** Chapman Fund grants, University of Utah (\$2500 total)

- 2017** Graduate Research Fellowship, University of Utah (\$18,250), “Soil carbonate rinds as a new terrestrial paleoarchive: testing interpretations of isotopic chemistry”
- 2016 and 2015** NSF Participant Grants for the SPATIAL and IsoCamp short courses, University of Utah (\$4,900 total)
- 2016 and 2015** Rio Mesa Young Scholar Grants, University of Utah (\$4986 total)
- 2016 and 2014** Research-in-Residence grants, Inter-university Training for Continental-scale Ecology program, University of Utah (\$12,250 total)
- 2016** Travel Grant to the Fall 2016 AGU Meeting, Global Change and Sustainability Center, University of Utah (\$500)
- 2015 and 2012** Graduate Student Grants, Geological Society of America (\$3364 total)
- 2015** Graduate Research Grant, Global Change and Sustainability Center, University of Utah (\$2997)
- 2014** Graduate Student Travel Assistance Award, University of Utah (\$750)
- 2013** Graduate Fellow, Think Globally, Learn Locally, University of Utah

AWARDS AND HONORS

- 2018** Outstanding PhD Student, University of Utah
- 2012** Best Presentation-Paleoclimate and Climate Dynamics, GeoDaze conference, University of Arizona
- 2007 (FA), 2008 (SP), and 2009 (SP)** Dean’s list, Cornell University

RESEARCH EXPERIENCE (*see also tylerhuth.com*)

- 2021–present Climate and Paleoclimate Laboratory, Washington University in St. Louis**
Postdoctoral research: Investigating the patterns and drivers of meteoric water triple oxygen isotope ($\Delta^{17}\text{O}$) composition in Uganda and the USA (vapor changes across Lake Michigan, coast-to-interior transects in the western USA, and country-wide patterns in USA cave drip waters)
- 2018–2021 Isotopologue Paleosciences Laboratory, University of Michigan**
Postdoctoral research: Developing the triple oxygen isotope and dual clumped isotope ($\Delta_{47}-\Delta_{48}$) methods for use in cave paleoarchives using laboratory, natural system, and paleo-approaches.
- 2013–2018 Laminated soil carbonate rinds as a paleoarchive, Colorado Plateau, Utah**
Ph.D. research: Combined modern environmental monitoring, radiocarbon, stable isotope, cosmogenic, and geologic mapping data to demonstrate laminated soil carbonate rinds can provide sub-millennially resolved records of ancient critical zone vegetation and water resources.

- 2014–2018** **Laboratory manager, Cerling Stable Isotope Facility, University of Utah**
 Maintained a mass spectrometer and its inlet systems (elemental analyzer, laser ablation system, common acid bath), a CO₂ extraction line, and a water extraction line; Taught and assisted visitors in running their samples.
- 2013** **Internship, Barrick Cortez, Nevada**
 Assisted in the prefeasibility study for the Goldrush property, a multimillion-ounce Carlin type gold deposit.
- 2010–2012** **Late Quaternary history of the Asian Monsoon, Tibet, China**
Master's research: Reconstructed the latest Quaternary climate of Tibet through mapping, soil descriptions, radiocarbon dating of lake carbonates, and hydrologic modeling.
- 2010–2012** **Research assistant, Quade Laboratory, University of Arizona**
 Prepared and processed organic matter and lake carbonate samples on gas extraction and graphitization lines for radiocarbon dating.
- 2012** **Field assistant, Great Basin, Utah and Nevada**
 Collected late Quaternary lake and cave deposits in the Bonneville Basin, UT, and Lehman Cave, NV, for reconstructing regional paleoclimate.
- 2012** **Cave of the Bells, Arizona**
 Assisted in collecting modern cave water and calcite for study of cave geochemistry ($\delta^{18}\text{O}$ -drip water and within-cave kinetic effects).
- 2008–2009** **Volunteer, Hawaiian Volcano Observatory**
 Identified and categorized deformation processes occurring at Kilauea Volcano.
- 2008–2010** **Undergraduate research assistant, Cornell University**
- 2008** **Cornell University Earth and Environmental Systems Field Program**

TEACHING

University of Michigan

Postdoctoral Short Course on College Teaching in Science and Engineering (FA 2021)

University of Utah

Geochemistry (sole instructor FA 2018, Teaching Assistant FA 2014)

IsoCamp short course in stable isotope ecology (Instructor, SU 2017, SU 2019)

Biophysical Ecology (Teaching Assistant FA 2015)

Clayton Middle School (Scientist-in-Residence for 7th grade classroom as part of NSF-funded Think Globally, Learn Locally (TGLL) program, University of Utah, 2013–2014)

University of Arizona

Introductory Geology for non-majors (Teaching Assistant FA 2010, SP 2012, FA 2012)

Introductory Geology for majors (Teaching Assistant FA 2011)

OUTREACH, SERVICE, AND DEI ACTIVITIES

- 2021-present** Co-lead of the DIRTS (Developing Investigators Researching Trends in Soils) pre-college outreach program to teach geoscience through environmental monitoring (NSF grants EAR-2051587, EAR-2051585, and EAR-2051548)
- 2021** Member of the Michigan Earth Diversity, Equity, and Inclusion (DEI) Pod for the NSF- and WHOI-funded Unlearning Racism in Geoscience (URGE)
- 2020–2021** Co-lead the development of “Michigan Shakes!”, a seismology-based outreach event for pre-college students done in partnership with the University of Michigan Wolverine Pathways program
- 2019–2021** Mentor for IPL graduate students at University of Michigan; edited manuscripts, proposals, and conference abstracts for lab members as part of the laboratory’s Weekly Writing Group, trained in laboratory and data reduction procedures
- 2013–2018** Mentor for undergraduate students at the University of Utah; trained five undergraduate students in multi-week field and laboratory techniques. Mentored student Max Jin in developing and carrying out a project that he presented at the GSA Fall Meeting 2018: “Trace elements in laminated soil carbonates: first steps towards understanding the signal”
- 2016–2018** Scientist-in Residence at City Academy, Salt Lake City; advised 7th-12th grade Science Olympiad club
- 2017–2018** Volunteer for the Annual Open House, Department of Geology and Geophysics, University of Utah
- 2017** Led a public field trip and gave an invited lecture for the Entrada Institute, Torrey Utah
- 2016** Public presentation at the Rio Mesa Field Station, University of Utah
- 2015–2016** Scientist-in-Residence and Science Fair judge at Clayton Middle School, Salt Lake City, Utah
- 2010–2011** Co-organizer and presenter at the Saturday Science Academy, University of Arizona

PROFESSIONAL AFFILIATIONS AND SERVICE

American Association for the Advancement of Science

American Geophysical Union

Geological Society of America

Geochemical Society

Reviewer for: Chemical Geology; Frontiers in Earth Science; Geochemistry, Geophysics,
Geosystems; Geology; Journal of Geophysical Research Biogeosciences; Journal of
Hydrology, NSF MRI Program; Quaternary Research

REFERENCES

Benjamin Passey

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Department of Earth and Environmental Sciences
University of Michigan
Phone: (734) 615-9041
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Naomi Levin

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