Updated December 2025

CURRICULUM VITAE

BENJAMIN H. PASSEY

ACADEMIC POSITION

Professor with tenure, Department of Earth and Environmental Sciences, and Program in the Environment, University of Michigan

RESEARCH INTERESTS

Development and application of methods in isotope geochemistry for reconstructing the history of climate, habitats, and life on Earth. High-precision stable isotope geochemistry, including triple oxygen isotopes and clumped isotopes.

EDUCATION

B.S.	Geology	University of Utah	2001
M.S.	Geology	University of Utah	2004
Ph.D.	Geology	University of Utah	2007

PROFESSIONAL EXPERIENCE

Research and Teaching Assistant, University of Utah, 2001–2007
Dreyfus Postdoctoral Scholar in Geochemistry, Caltech, 2007–2009
Assistant (2009–2015), Associate (2015–2016) Professor, Johns Hopkins University
Associate Professor (2016–2024), University of Michigan
Full Professor (2024–present), University of Michigan

PROFESSIONAL AFFILIATIONS

Geological Society of America (Fellow)
Geochemical Society
Mineralogical Society of America
American Geophysical Union
American Chemical Society
Society of Vertebrate Paleontology

TEACHING

University of Michigan
Earth 131 Earth and Environmental Chemistry (ugrad). Fall 2018, 2019. Winter 2022, 2024
Earth 331 Climate and Climate Change (ugrad). Winter 2017– 2022, Fall 2023, Winter 2025
Earth 480/580/596 Isotope Geochemistry (grad). Fall 2017, Winter 2021, Fall 2024, 2025

Johns Hopkins University
AS 270.103 Intro. to Global Environmental Change (ugrad). Fall 2010, 2011, 2012, 2013.
AS 270.220 The Dynamic Earth: An Introduction to Geology (ugrad). Fall 2015.
AS 270.313 Isotope Geochemistry (grad / upper ugrad). Spring 2010, 2012, 2013, 2015.
AS 270.377 Climates of the Past (grad / upper ugrad). Spring 2011, 2012, 2013.
AS 270.625 Seminar in Biogeochemistry (grad seminar). Spring 2011, 2012, 2013.
AS 270.633 Advanced Topics in Isotope Geochemistry (grad seminar). Fall 2011, 2012, 2013.

University of Utah
GG 3090 Earth Materials II (lower-level ugrad). Part semester instructor, Spring 2007.
GG 5660 Geochemistry (upper-level ugrad). Teaching Assistant (TA), Fall 2006.

GG 4100 Optical Mineralogy and Petrology (upper-level ugrad). TA, Fall 2006.
GG 3300 The Water Planet (ugrad general education). TA, Spring 2004.
BIOL 6470 SIRFER Stable Isotope Short Course. Laboratory Assistant, 2002–2005.

ADVISING

Postdoctoral
Dr. Matthew L. Allen (2024–) Jointly advised with Naomi Levin.
Dr. Julia R. Kelson (2019–2023) Jointly advised with Sierra Petersen and Naomi Levin. Presently: assistant professor at Indiana University.
Dr. Tyler E. Huth (2018–2021). Presently: postdoc at Washington University
Dr. Ian Z. Winkelstern (2016–2018). Presently: assistant prof. at Grand Valley State U.
Dr. Marina B. Suarez (2009–2011). Presently: associate prof. at University of Kansas

Doctoral (as committee chair):
Evan Unruh-Friesen (2025 –)
Jungpyo Hong (2022 –)
Dr. Nicholas Ellis (2019 – 2024). Presently: postdoc at UC Berkeley.
Dr. Dana Brenner (2014–2018). Presently: stable isotope lab technician, Johns Hopkins.
Dr. Haoyuan Ji (2011–2016). Presently: Google, LLC, Kirkland, WA.
Dr. Huanting Hu (2011–2016). Presently: research scientist, Shanghai Jiao Tong University.
Dr. Gregory A. Henkes (2009–2014). Presently: associate professor, SUNY Stony Brook.

Masters (as primary advisor)
Natalie Packard (2018–2022)

Laboratory Staff:
Kirsten Andrews, 2022–2024. Entering graduate school Fall 2024.
Drake A. Yarian, 2017–2020. MS, 2024, University of Cape Town. Presently: lab technician, Yale University.

Undergraduate senior thesis:
Tucker B. Gordon (class of 2016)
Matt Sykes (class of 2013)

Visiting students and postdocs (extended visits):
Dr. Joonas Wasiljeff, University of Helsinki (2/19 – 3/19; 11/19–12/19)
Dr. Jeanine Ash, UCLA (1/16 – 4/16)
Ms. Sonal Jain, ITT Roorkee, India Fulbright Scholar (10/14 – 7/15)
Dr. Laiming Zhang, China University of Geosciences,(10/14 – 11/15)
Dr. Justin VanDeVelde, University of Plymouth (11/13 – 1/14; 11/14 – 1/15)
Dr. Laura Arppe, University of Helsinki (2/12 – 5/12)

LABORATORY

Co-director, University of Michigan ISO PALEO LAB (w/ Naomi Levin) 2016–present
This laboratory is centered around two Nu Perspective–IS mass spectrometers, and features custom-built automated prep systems for triple oxygen isotopes in waters, carbonates, CO_2, and CO (including TC/EA-generated CO); clumped isotopes in CO_2 and carbonates; and laser ablation GC-IRMS analysis of fossil teeth.

Co-director, Johns Hopkins Stable Isotope Lab (w/ Naomi Levin). 2009–2016

This lab was centered around a Thermo MAT 253 mass spectrometer and specialized in carbonate clumped isotopes (Δ_{47}); triple-oxygen isotopes ($\Delta^{17}O$) in waters, CO_2, and carbonates; laser-ablation GC-IRMS ($\delta^{13}C$, $\delta^{18}O$) of fossil teeth; δD and $\delta^{18}O$ analysis of waters (Los Gatos Research Instrument); and $\delta^{13}C$, $\delta^{18}O$ analysis of small (50 ug) carbonate samples.

FUNDED RESEARCH GRANTS

NSF EAR 2202682, $117,486, 7/2022–6/2026. Role: PI. Collaborative Research: Continental temperature variability during Greenland stadials and interstadials from clumped isotope and $^{88}Sr/^{86}Sr$ measurements of subaqueous speleothems.

University of Michigan Meet the Moment Vital Impacts Project, $249,855, 8/2022–8/2024. Role: co-I (N. Levin, PI). Balancing water needs amidst climate change: Mono Lake as a case study for communities and watersheds in the U.S.

NSF EAR 2051548, $263,675, 8/01/21–7/30/23. Role: PI.
Collaborative Research: Laminated soil carbonate rinds as a tool for investigating late Quaternary climate-vegetation links.

NSF EAR 2102843, $331,413, 7/15/21–7/14/24. Role: co-I (N. Levin, PI).
Development of precipitation, evaporation and temperature records from tropical lake sediments and cave deposits for the last 700,000 years.

Associate Professor Support Fund (U-M Margaret and Herman Sokol Faculty Awards). Role: PI. $83,965. 7/2020–6/2023.
Development of a novel analytical approach and instrument for dual clumped-isotope paleothermometry.

NSF EAR 1812549, $294,835. 7/2018–6/2023. Role: co-I (N. Sheldon, PI).
Collaborative Research: Green River Eocene Earth and Climate Observatory (GREECO).

American Chemical Society PRF 54850-ND2, $110,000, 6/2015–8/2017. Role: PI.
Oxygen–17 in sedimentary and diagenetic carbonates.

NSF EAR 1227076, $147,206. 9/2012–8/2015. Role: PI.
Collaborative Research: Constraining rates of C-O bond reordering in biogenic calcite: Implications for clumped isotope thermometry.

American Chemical Society PRF 50321-DNI12, $100,000. 9/2010–8/2012. Role: PI.
Carbonate 'clumped isotope' thermometry: constraining closure temperatures for the ^{13}C-^{18}O order/disorder process in carbonate minerals.

NSF BCS 0948310, $25,625. 3/2010–2/2012. Role: PI.
Collaborative Research: Rodent Diets and Habitat Reconstructions in South Africa: an Actualistic and Applied Multidisciplinary Study.

GSA Graduate Research Grant, 2005, Late Miocene terrestrial environments and C_4 vegetation in north-central China: An isotopic record from fossil mammals and soil carbonate

PUBLICATIONS

Google Scholar: 12253 citations, H-Index = 50

underlined = student or postdoc advisee
[M] = paper includes data from ISO PALEO LAB at the University of Michigan
[J] = paper includes data from the Stable Isotope Laboratory at Johns Hopkins University

Submitted

[M]Huth TE, Cerling TE, Marchetti DW, Ellwein AL, Mahan S, Bowling DR, Passey BH, Asmerom Y, Polyak VJ, Springtime formation of laminated soil carbonate rinds and orbital scale change in fluvial terrace soils of Rio Mesa, Utah, USA. Submitted to *Geochemistry, Geophysics, Geosystems* September 2025.

[M]Rhodes R, Hyland E, Passey BH, Sheldon ND, Paleohydrology of paleolake Gosiute during the Early Eocene Climatic Optimum from Green River Formation stromatolites. Submitted to *GSA Bulletin* June 2024.

Published / In Press

88. Marchetti D, Ellwein A, Huth T, Cerling T, Anderson L, Passey B, Hynek S Ages of boulder armored benches document varying Fremont River tributary incision rates, Teasdale-Torrey lowlands, Utah. Accepted to *Geosphere*

87.[M]Katz SA, Levin NE, Rodbell DT, Abbott MB, Passey BH, Katz SA (2025) Orbital forcing drives both the South American monsoon and local water balance in the central Andes during interglacials. Accpted in *Geophysical Research Letters* 52, *e2025GL116249*

86.[J]Hare VJ, Yarian DA, Faith JT, Harris C, Lee-Thorp JA, Passey BH, Sokolowski KG, Ségalen L (2025) Triple oxygen isotopes in eggshell carbonate as a proxy of late Cenozoic CO_2 and primary productivity. *Geochimica et Cosmochimica Acta* 399, 48–63.

85. [M]Katz SA, Levin NE, Abbott MB, Rodbell DT, Passey BH, DeLuca NM, Larsen DJ, Woods A (2024) Holocene temperature and water stress in the Peruvian Andes: Insights from lake carbonate clumped and triple oxygen isotopes. *Paleoceanograpy and Paleoclimatology* 39, 5, e2023PA004827.

84.[J]Hu H, Passey BH, Lehmann SB, Levin NE, Johnson BJ (2023). Modeling and interpreting triple oxygen isotope variations in vertebrates, with implications for paleoclimate and paleoecology. *Chemical Geology* 642, 121812.

83.[M]Ellis NM and Passey BH (2023) A novel method for high-precision triple oxygen isotope analysis of diverse Earth materials using high temperature conversion-methanation-fluorination and isotope ratio mass spectrometry. *Chemical Geology* 635, 121616.

82.[M]Kelson JR, Huth TE, Passey BH, Levin NE, Petersen SV, Ballato P, Beverly EJ, Breecker DO, Hoke GD, Hudson AM, Ji H, Licht A, Quade J (2023) Triple oxygen isotope compositions of globally distributed soil carbonates reveal widespread soil water evaporation. *Geochimica et Cosmochimica Acta* 355, 138–160.

81. [M]Katz SA, Levin NE, Rodbell DT, Gillikin DP, Aron PG, Passey BH, Tapia PM, Serrepe AR, Abbott, MB (2023). Detecting hydrologic distinctions among Andean lakes using clumped and triple oxygen isotopes. *Earth and Planetary Science Letters* 602, 117927.

80. [J]Lehmann SB, Levin NE, Passey BH, Hu H, Cerling TE, Miller JH, Arppe L, Beverly EJ, Hoppe KA, Luyt J, Sealy J (2022). Triple oxygen isotope distribution in modern mammal teeth and potential geologic applications. *Geochimica et Cosmochimica Acta.* 331, 105–122.

79. [M]Kelson JR, Petersen SV, Niemi NA, Passey BH, Curley A, (2022) Looking upstream with clumped and triple oxygen isotopes of estuarine oyster shells in the early Eocene of California. *Geology* 50, 755–759.

78. [M]Huth TE, Passey BH, Cole JE, Lachniet MS, McGee D, Denniston RF, Levin NE (2022) A framework for triple oxygen isotopes in speleothem paleoclimatology. *Geochimica et Cosmochimica Acta* 319, 191–219.

77. [M]Beverly EJ, Levin NE, Passey BH, Aron PG, Yarian DA, Page M, Pelletier EM (2021) Triple oxygen and clumped isotopes in modern soil carbonate along an aridity gradient in the Serengeti, Tanzania. *Earth and Planetary Science Letters* 567, 116952.

76. [M]Bernasconi S and 60 others including Passey B (2021) InterCarb: A community effort to improve inter-laboratory standardization of the carbonate clumped isotope thermometer using carbonate standards. *Geochemistry, Geophysics, Geosystems* 22, e2020GC009588.

75. [M]Brenner DC, Passey BH, Holder RM, Viete DR (2021), Clumped-isotope geothermometry and carbonate U-Pb geochronology of the Alta Stock metamorphic aureole, Utah, USA: Insights on the kinetics of metamorphism in carbonates. *Geochemistry, Geophysics, Geosystems* 22, e2020GC009238.

74. [M]Aron P, Levin NE, Beverly EJ, Huth TE, Passey BH, Pelletier EM, Poulsen CJ, Winkelstern IZ, Yarian DA (2021), Triple oxygen isotopes in the water cycle. *Chemical Geology* 565, 120026.

73. [M,J]Wang Y, Passey BH, Rupsa R, Tao D, Jiang S, Hannold C, Wang X, Lochner E, Tripati A (2021) Clumped isotope thermometry of fossil and modern snail shells from the Himalayan-Tibetan Plateau: Implications for paleo-climate and paleo-elevation reconstructions. *GSA Bulletin*.

72. [M]Passey BH and Levin NE (2021) Triple oxygen isotopes in meteoric waters, carbonates, and biological apatites: implications for continental paleoclimate reconstruction. *Reviews in Mineralogy and Geochemistry, Volume 86, Triple Oxygen Isotope Geochemistry* (Bindeman IN, Pack A, eds.), p. 429-462.

71. [M]Bralower TJ, Cosmidis J, Fantle MS, Lowery M, Passey BH, Gulick SPS, and 30 others (2020) The habitat of the nascent Chicxulub crater. *AGU Advances* 1, e2020AV000208. https://doi.org/10.1029/2020AV000208

70. [J]Huth TE, Cerling TE, Marchetti DW, Bowling DR, Ellwein A, Passey BH, Fernandez DP, Valley JW, Orland IJ, (2020) Laminated soil carbonate rinds as a paleoclimate archive of the Colorado Plateau. *Geochimica et Cosmochimica Acta* 282, 227-244.

69. [J]Petersen SV and 29 others, including Passey BH (2019) Effects of improved ^{17}O correction on interlaboratory agreement in clumped isotope calibrations, estimates of mineral-specific offsets, and temperature dependence of acid digestion fractionation. Geochemistry, Geophysics, Geosystems 20, 3495–3519.

68. [J]Passey BH and Ji H (2019) Triple oxygen isotope signatures of evaporation in lake waters and carbonates: A case study from the western United States. *Earth and Planetary Science Letters* 518, 1-12.

67. [J]Huth TE, Cerling TE, Marchetti DW, Bowling D, Ellwein A, Passey BH (2019) Seasonal bias in soil carbonate formation and its implications for interpreting high-resolution paleoarchives: evidence from southern Utah. *JGR Biogeosciences* 124, 616-632.

66. [J]Ning Z, Zhang L, Huntington KW, Wang C, Dai J, Han Z, Passey BH, Qian X, Zhang J (2019) The burial and exhumation history of the Liuqu Conglomerate in the Yarlong Zangbo suture zone, southern Tibet: Insights from clumped isotope thermometry. *Journal of Asian Earth Sciences* 174, 205-217.

65. [J]Henkes GA, Passey BH, Grossman EL, Shenton BJ, Yancey TE, Pérez-Huerta A (2018) Temperature evolution and the oxygen isotope composition of Phanerozoic oceans from carbonate clumped isotope thermometry. *Earth and Planetary Science Letters* 490, 40–50.

64. [J]Brenner DC, Passey BH, Stolper DA (2018) Influence of water on clumped-isotope bond reordering kinetics in calcite. *Geochimica et Cosmochimica Acta* 224, 42-63.

63. [J]Fan M, Ayyash SA, Tripati A, Passey BH, Griffith EM (2018) Terrestrial cooling and changes in hydroclimate in the continental interior of the United States across the Eocene-Oligocene boundary. *Geological Society of America Bulletin*.

62. [J]Kotthoff U. and 18 others (2017) Reconstructing Holocene temperature and salinity variations in the western Baltic Sea region: a multi-proxy comparison from the Little Belt (IODP Expedition 347, Site M0059). *Biogeosciences,* 14, 5607-5632.

61. [J]Leichliter J, Sandberg P, Passey B, Codron D, Avenant N, Paine O, Codron J, de Ruiter D, Sponheimer M (2017) Stable carbon isotope ecology of modern small mammals from the Sterkfontein Valley: Implications for habitat reconstruction in mosaic environments. *Palaeogeography, Palaeoclimatology, Palaeoecology* 485, 57-67.

60. Sukselainen L, Kaakinen A, Eronen JT, Passey BH, Harrison T, Zhang Z, Fortelius M (2017) The palaeoenvironment of the middle Miocene pliopithecid locality in Damiao, Inner Mongolia, China. *Journal of Human Evolution* 108, 31-46.

59. Bonifacie M, Calmels D, Eiler JM, Horita J, Chaduteau C, Vasconcelos C, Agrinier P, Katz A, Passey BH, Ferry JM, Bourrand J-J (2017) Calibration of the dolomite clumped isotope thermometer from 25 to 350 °C, and implications for a universal calibration for all (Ca, Mg, Fe)CO_3 carbonates. *Geochimica et Cosmochimica Acta* 200, 255-279.

58. [J]Leichliter J, Sponheimer M, Avenant N, Sandberg P, Paine O, Codron D, Codron J, Passey B (2016) Small mammal insectivore stable carbon isotope compositions as habitat proxies

in a South African savanna ecosystem. *Journal of Archaeological Science Reports* 8, 335–345.

57. Garcia N, Feranec RS, Passey BH, Cerling TE, Arsuaga J-L (2015) Exploring the potential of laser ablation carbon isotope analysis for examining ecology during the ontogeny of Middle Pleistocene hominins from Sima de los Huesos (northern Spain). *PLoS ONE* 10(12):e0142895. doi:10.1371/journal.pone.0142895.

56. [J]Arppe L, Kaakinen A, Passey BH, Zhang Z, Fortelius M (2015) Small mammal tooth enamel carbon isotope record of C_4 grasses in late Neogene China. *Global and Planetary Change* 133, 288–297.

55. Cerling TE, Andanje SA, Blumenthal SA, Brown FH, Chritz KL, Harris JM, Hart JA, Kirera FM, Kaleme P, Leakey LN, Leakey MG, Levin NE, Manthi FK, Passey BH, Uno KT (2015) Dietary changes of large herbivores in the Turkana Basin, Kenya from 4 to 1 Ma. *Proceedings of the National Academy of Sciences, USA* 112, 11467–11472.

54. Passey BH (2015) Biogeochemical tales told by isotope clumps. *Science* 348, 394–395.

53. [J]Shenton BJ, Grossman EL, Passey BH, Henkes GA, Becker TP, Laya JC, Pérez-Huerta A, Becker SP, Lawson M (2015) Clumped isotope thermometry in deeply buried sedimentary carbonates: The effects of bond reordering and recrystallization. *Geological Society of America Bulletin* 127, 1036–1051.

52. Kaakinen A, Aziz HA, Passey BH, Zhang ZQ, Liu LP, Salminen J, Wang L, Krijgsman W. and Fortelius M (2015) Age and stratigraphic context of Pliopithecus and associated fauna from Miocene sedimentary strata at Damiao, Inner Mongolia, China. *Journal of Asian Earth Sciences* 100, 78–90.

51. [J]Fan M, Hough BG, Passey BH (2014) Middle to late Cenozoic cooling and high topography of the central Rocky Mountains: constraints from clumped isotope geochemistry. *Earth and Planetary Science Letters* 408, 35–47.

50. [J]Passey BH, Hu H, Ji H, Montanari S, Li S, Henkes GA, Levin NE (2014) Triple oxygen isotopes in biogenic and sedimentary carbonates. *Geochimica et Cosmochimica Acta* 141, 1–25.

49. [J]Suarez MB and Passey BH (2014) Assessment of the clumped isotope composition of fossil bone carbonate as a recorder of subsurface temperatures. *Geochimica et Cosmochimica Acta* 140, 142-159.

48. [J]Henkes GA, Passey BH, Grossman EL, Shenton BJ, Pérez-Huerta A, Yancey TE (2014) Temperature limits for preservation of primary calcite clumped isotope paleotemperatures. *Geochimica et Cosmochimica Acta* 139, 362-382.

47. Garzione CN, Auerbach DJ, Smith JJ-S, Rosariao JJ, Passey BH, Jordan TE, Eiler JM (2014) Clumped isotope evidence for diachronous surface cooling of the Altiplano and pulsed surface uplift of the Central Andes. *Earth and Planetary Science Letters* 393, 173–181.

46. [J]Hough BG, Fan M, Passey BH (2014) Calibration of the clumped isotope geothermometer in soil carbonate in Wyoming and Nebraska: implications for paleoelevation and paleoclimate reconstruction. *Earth and Planetary Science Letters* 391, 110–120.

45. Eronen JT, Kaakinen A, Liu LP, Passey BH, Tang H, and Zhang ZQ (2014). Here be dragons: Mesowear and tooth enamel isotopes of the classic Chinese "Hipparion" faunas from Baode, Shanxi Province, China. *Annales Zoologici Fennici* 51, 227–244.

44. Wang Y, Xu Y, Khawaja S, Passey BH, Zhang C, Wang X, Li Q, Tseng ZJ, Takeuchi GT, Deng T, Xie G (2013) Diet and environment of a mid-Pliocene fauna from southwestern Himalaya: Paleo-elevation implications. *Earth and Planetary Science Letters* 376, 43-53. http://dx.doi.org/10.1016/j.epsl.2013.06.014

43. [J]Price GD, Passey BH (2013) Dynamic polar climates in a greenhouse world: Evidence from clumped isotope thermometry of early Cretaceous belemnites. *Geology* 41, 923-926. doi:10.1130/G34484.1

42. Kaakinen A, Passey BH, Zhang ZQ, Liu LP, Pesonen LJ, Fortelius M (2013) Stratigraphy and paleoecology of the classical dragon bone localities of Baode County, Shaanxi Province. p. 203-217. *In* Wang XM, Flynn LJ, Fortelius M, eds., *Fossil Mammals of Asia: Neogene Biostratigraphy and Chronology*. Columbia University Press, New York, 732 p.

41. [J]VanDeVelde JH, Bowen GJ, Passey BH, Bowen BB (2013). Climatic and diagenetic signals in the stable isotope geochemistry of dolomitic paleosols spanning the Paleocene-Eocene boundary. *Geochimica et Cosmochimica Acta* 109, 254-267.

40. [J]Henkes GA, Passey BH, Wanamaker AD, Grossman EL, Ambrose WG Jr., Carroll ML (2013). Carbonate clumped isotope compositions of modern marine mollusk and brachiopod shells. *Geochimica et Cosmochimica Acta* 106, 307-325.

39. [J]Passey BH, Henkes GA (2012). Carbonate clumped isotope bond reordering and geospeedometry. *Earth and Planetary Science Letters* 351-352, 223-236.

38. Passey BH (2012) Reconstructing terrestrial environments using stable isotopes in fossil teeth and paleosol carbonates. *In* Linda C. Ivany and Brian Huber (eds.), Reconstructing Earth's Deep-Time Climate – The State of the Art in 2012. *Paleontological Society Papers* 18, 167-193.

37. [J]Henry AG, Ungar PS, Passey BH, Sponheimer M, Rossouw L, Bamford M, Sandberg P, de Ruiter DJ, Berger L (2012) The diet of *Australopithecus sediba*. *Nature* 487, 90-93. doi:10.1038/nature11185

36. Hynek SA, Passey BH, Prado JL, Brown FH, Cerling TE, Quade J (2012) Small mammal carbon isotope ecology across the Miocene-Pliocene boundary, northwestern Argentina. *Earth and Planetary Science Letters* 321-322, 177-188.

35. Cerling TE, Levin NE, Passey BH (2011) Stable isotope ecology in the Omo-Turkana Basin. *Evolutionary Anthropology* 20, 228-237.

34. [J]Dennis KJ, Affek HP, Passey BH, Schrag DP, Eiler JM (2011) Defining an absolute reference frame for 'clumped' isotope studies of CO_2. *Geochimica et Cosmochimica Acta* 75, 7117-7131.

33. [J]Suarez MB, Passey BH, Kaakinen A (2011) Paleosol carbonate multiple isotopologue signature of active East Asian summer monsoons during the late Miocene and Pliocene. *Geology* 39, 1151-1154.

32. Ferry JM, Passey BH, Vasconcelos C, Eiler JM (2011) Formation of dolomite at 40-80 °C in the Latemar carbonate buildup, Dolomites, Italy, from clumped isotope thermometry. *Geology* 39, 571-574.

31. Lee-Thorp JA, Sponheimer M, Passey BH, de Ruiter DJ, Cerling TE (2010) Stable isotopes in fossil hominin tooth enamel suggest a fundamental dietary shift in the Pliocene. *Philosophical Transactions of the Royal Society B.* 365, 3389-3396.

30. Passey BH, Levin NE, Cerling TE, Brown FH, Eiler JM (2010) High-temperature environments of human evolution in East Africa based on bond ordering in paleosol carbonates. *Proceedings of the National Academy of Sciences, USA* 107, 11245-11249.

29. Zazzo A, Ballase, M, Passey BH, Moloney AP, Monahan FJ, Schmidt O (2010) The isotope record of short- and long-term dietary changes in sheep tooth enamel: Implications for quantitative reconstructions of paleodiets. *Geochimica et Cosmochimica Acta* 74, 3571-3586.

28. Cerling TE, Harris JM, Leakey MG, Passey BH, Levin NE (2010) Stable carbon and oxygen isotopes in East African mammals: modern and fossil. *In* Cenozoic Mammals of Africa, Werdelin L. and Sanders W. eds. University of California Press.

27. Huntington KW, Eiler JM, Affek HP, Guo W, Bonifacie M, Yeung LY, Thiagarajan N, Passey B, Tripati A, Daëron M, Came R (2009) Methods and limitations of 'clumped' CO_2 isotope (Δ_{47}) analysis by gas-source isotope ratio mass spectrometry. *Journal of Mass Spectrometry*, 44, 1318-1329. DOI 10.1002/jms.1614

26. Sponheimer M, Codron D, Passey BH**,** de Ruiter DJ, Cerling TE, Lee-Thorp JA (2009) Using carbon isotopes to track dietary change in modern, historical, and ancient primates. *American Journal of Physical Anthropology*, 140, 661-670.

25. Passey BH, Ayliffe LK, Kaakinen A, Zhang ZQ, Eronen JT, Zhu YM, Zhou LP, Cerling TE, Fortelius M (2009) Strengthened East Asian summer monsoons during a period of high-latitude warmth? Isotopic evidence from Mio-Pliocene fossil mammals and soil carbonates from northern China. *Earth and Planetary Science Letters*, 277, 443-452.

24. Harris JM, Cerling TE, Leakey MG, Passey BH (2008) Stable isotope ecology of fossil hippopotamids from the Lake Turkana Basin of East Africa. *Journal of Zoology* 275, 323-331.

23. Cerling TE, Harris JM, Hart JA, Kaleme P, Klingel H, Leakey MG, Levin NE, Lewison RL, Passey BH (2008) Stable isotope ecology of the common hippopotamus. *Journal of Zoology* 276, 204-212.

22. Podlesak DW, Torregrossa A-M, Ehleringer JR, Dearing MD, Passey BH, Cerling TE (2007) Turnover of oxygen and hydrogen isotopes in the body water, CO_2, hair and enamel of a small mammal. *Geochimica et Cosmochimica Acta* 72, 19-35.

21. Passey BH, Cerling TE, Levin NE (2007) Temperature dependence of oxygen isotope acid fractionation for modern and fossil tooth enamels. *Rapid Communications in Mass Spectrometry* 21, 1-7

20. Passey BH, Eronen JT, Fortelius M, and Zhang ZQ (2007) Paleodiets and paleoenvironments of late Miocene gazelles from North China: Evidence from stable carbon isotopes. *Vertebrata PalAsiatica* 45, 118-127. (Scientific publication with informal review).

19. Cerling TE, Ayliffe LK, Dearing MD, Ehleringer JR, Passey BH, Podlesak DW, Torregrossa AM, West AG (2007) Determining biological tissue turnover using stable isotopes: the reaction progress variable. Oecologia 151, 175-189.

18. Passey BH, and Cerling TE (2006) In situ stable isotope analysis ($\delta^{13}C$, $\delta^{18}O$) of very small teeth using laser ablation GC/IRMS. *Chemical Geology* 235, 238-249.

17. Sponheimer M, Passey BH, de Ruiter DJ, Guatelli-Steinberg D, Cerling TE, Lee-Thorp J (2006) Isotopic evidence for dietary variability in the early Hominin *Paranthropus robustus*. *Science* 314, 980-982.

16. Passey BH, Cerling TE, Chan MA (2006) Dam Fun: A scale-model classroom experiment for teaching basic concepts in hydrology and sedimentary geology. *Journal of Geoscience Education* 54, 487-490.

15. Levin NE, Cerling TE, Passey BH, Harris JM, Ehleringer JR (2006) A stable isotope aridity index for terrestrial environments. *Proceedings of the National Academy of Sciences* 103, 11201-11205.

14. Robinson TF, Sponheimer M, Roeder BL, Passey BH, Cerling TE, Dearing MD, and Ehleringer JR (2006) Digestibility and nitrogen retention in llamas and goats fed alfalfa, C_3 grass, and C_4 grass hays. *Small Ruminant Research* 64, 162-168.

13. Jokela T, Eronen JT, Kaakinen A, Liu LP, Passey BH, Zhang ZQ, and Fu MK (2005) Translation of Otto Zdansky's "The localities of the Hipparion fauna of Baode County in northwest Shanxi". *Palaeontologica Electronica* 8, Art. No. 3A.

12. Passey BH, Cerling TE, Schuster GT, Robinson TF, Roeder BL, Krueger SK (2005) Inverse methods for estimating primary input signals from time-averaged intra-tooth isotope profiles. *Geochimica et Cosmochimica Acta* 69, 4101-4116.

11. Passey BH, Robinson TF, Ayliffe LK, Cerling TE, Sponheimer M, Dearing MD, Roeder BL, Ehleringer JR (2005) Carbon isotopic fractionation between diet, breath CO_2, and bioapatite in different mammals. *Journal of Archaeological Science* 32, 1459-1470.

10. Cerling TE, Passey BH, Ayliffe LK, Cook CS, Ehleringer JR, Harris JM, Dhidha MB, Kasiki SM (2004) Orphans' tales: seasonal dietary changes in elephants from Tsavo National Park, Kenya. *Palaeogeography, Palaeoclimatology, Palaeoecology* 206, 367-376.

9. Ayliffe LK, Cerling TE, Robinson T, West AG, Sponheimer M, Passey BH, Hammer J, Roeder B, Dearing MD, Ehleringer JR (2003) Turnover of carbon isotopes in tail hair and breath CO_2 of horses fed an isotopically varied diet. *Oecologia* 139, 11-22.

8. Passey BH and Cerling TE (2004) Response to comment by M.J. Kohn on "Tooth enamel mineralization in ungulates: Implications for recovering a primary isotopic time-series" by B.H. Passey and T.E. Cerling (2002). *Geochimica et Cosmochimica Acta* 68, 407-409.

7. Sponheimer M, Robinson TF, Roeder BL, Passey BH, Ayliffe LK, Cerling TE, Dearing MD, Ehleringer JR (2003) An experimental study of nitrogen flux in llamas: is ^{14}N preferentially excreted? *Journal of Archaeological Science* 30, 1649-1655.

6. Sponheimer M, Robinson T, Ayliffe L, Roeder B, Hammer J, Passey B, West A, Cerling T, Dearing D, Ehleringer J (2003) Nitrogen isotopes in mammalian herbivores: Hair $\delta^{15}N$ values from a controlled feeding study. *International Journal of Osteoarchaeology* 13, 80-87.

5. Sponheimer M, Robinson T, Ayliffe L, Passey B, Roeder B, Shipley L, Lopez E, Cerling T, Dearing D, Ehleringer J (2003) An experimental study of carbon-isotope fractionation between diet, hair, and feces of mammalian herbivores. *Canadian Journal of Zoology* 81, 871-876.

4. Cerling TE, Harris JM, Passey BH (2003) Diets of east African Bovidae based on stable isotope analysis. *Journal of Mammalogy* 84, 456-470.

3. Sponheimer M, Robinson T, Roeder B, Hammer J, Ayliffe L, Passey B, Cerling T, Dearing D, Ehleringer J (2003) Digestion and passage rates of grass hays by llamas, alpacas, goats, rabbits, and horses. *Small Ruminant Research* 48, 149-154.

2. Passey BH and Cerling TE (2002) Tooth enamel mineralization in ungulates: Implications for recovering a primary isotopic time-series: *Geochimica et Cosmochimica Acta* 66, 3225-3234.

1. Passey BH, Cerling TE, Perkins ME, Voorhies MR, Harris JM, Tucker ST (2002) Environmental change in the Great Plains: An isotopic record from fossil horses. *Journal of Geology* 110, 123-140.

SERVICE

Departmental

2024–	Turner Researc Proposal Committee
2024–	Assistant Prof. Launch Committee (Dr. Luke Weaver)
2023–	Graduate Admissions Committee
2023–	Curriculum Committee
2023	Faculty Search Committee (UMMP–EES joint position)
2021–2022	Faculty Search Committee (UMMP–EES joint position)
2018–2023	Laboratory Advisory Committee (Lead)
2020	Tenure and Promotion Committee (Assistant – Associate Professor)
2020	Promotion Committee (Lecturer I – Lecturer II)
2018–2019	Executive Committee
2018, 2019	Promotion Committee (Assistant – Associate Research Scientist)
2016–2018	Faculty Advisor, Michigan Geophysical Union
2016–	Judge, Michigan Geophysical Union Annual Poster Competition
2014–2015	Faculty Search Committee (at Johns Hopkins University)

College / University

2018–2021	Senate Assembly Representative for the college of LS&A
2011–2015	Laboratory Safety Committee, Homewood Campus, Johns Hopkins University

Professional

2023–	Editorial Board (Associate Editor), Geochimica et Cosmochimica Acta
2022	Tenure & Promotion External Reviewer (Assist. – Assoc. Professor)
2019	Tenure & Promotion External Reviewer (Assist. – Assoc. Scientist)

Manuscript Reviews

ACS Earth and Space Chemistry, American Journal of Science, BMC Ecology, Chemical Geology, Earth and Planetary Science Letters, Ecology, Geochemistry, Geophysics, Geosystems, Geochimica et Cosmochimica Acta, Geological Society of America Bulletin, Geology, Geophysical Research Letters, Global Change Biology, Global Ecology and Biogeography, Journal of Archaeological Science, Journal of Geophysical Research, Biogeosciences, Journal of Human Evolution, Journal of Mammalogy, Journal of Sedimentary Research, Mammalian Biology, Nature, Nature Geoscience, Nature Communications, Naturwissenschaften, Oecologia, Palaeo-3, Paleoceanography, PNAS, Quaternary Science Reviews, Rapid Communications in Mass Spectrometry, Reviews in Mineralogy and Geochemistry, Science, Tectonics, Tectonophysics

Grant Proposal Reviews

US National Science Foundation, American Chemical Society, Austrian Science Foundation, Swiss National Science Foundation, Bergen Research Foundation, Israel Science Foundation

Co-chair, Session V11A: Between cold outcrop and a hot place: Validation of clumped isotopes and other novel geochemical proxies to shallow crustal thermometry. (w/ Cedric John, Tobias Kluge, and Gregory Henkes). American Geophysical Union Fall Meeting, San Francisco, CA, 15–19 December 2014,

Co-organizer, 3rd International Workshop on Clumped Isotopes, Harvard University, January 10–11, 2013 (w/ Dan Schrag, Hagit Affek, and Kate Dennis).

External thesis / dissertation reviewer:

Edward Odes, M.S., University of Witswatersrand, Department of Anthropology (2013)
Paul Sandberg, Ph.D., University of Colorado, Department of Anthropology (2012)
Thomas Schmid, Ph.D., ETH Zurich (2011)

HONORS AND AWARDS

Fellow, Geological Society of America (2024)
Outstanding Doctoral Student in Geology, University of Utah, 2007
Outstanding Student Talk, North-Central GSA, 2005
Outstanding Masters Student in Geology, University of Utah, 2003
Outstanding Undergraduate Student in Geology, University of Utah, 2001
Undergraduate Scholarships, University of Utah: Bullock-Keller Scholarship, 2000–2001; Dorothy Rice Goode Scholarship, 1999–2000; Mineralogical Society of Utah Memorial Scholarship, 1998–1999, Chevron Scholarship in Geophysics, 1997–1998

ANALYTICAL INNOVATION

High-temperature reduction / methanation / fluorination method for high-precision triple oxygen isotope analysis of multiple materials (w/ Nick Ellis, 2020-2022), University of Michigan. Analysis of organics, phosphates, sulfates, nitrates, carbonates, and silicates by coupling a high-temperature reduction reactor (i.e. TC/EA) to the methanation-fluorination system described in Passey et al., 2014 (see below). The method achieves sub-10 ppm precision for the $\Delta'^{17}O$ measurement. Mansucript currently in review at Chemical Geology.

Acid digestion / methanation / fluorination method for high-precision triple oxygen isotope analysis of CO_2 and carbonate minerals (w/ Huanting Hu). 2012–2013, Johns Hopkins University. Vacuum manifolds and circulating loop reactor for converting oxygen in CO_2 to oxygen in H_2O via high–temperature, catalyst–promoted reduction with H_2 gas. The H_2O is subsequently fluorinated to O_2, allowing high–precision measurement of triple oxygen isotopes ($\Delta'^{17}O$). The method achieves sub-10 ppm precision for the $\Delta'^{17}O$ measurement, and is described in Passey et al. (2014), Geochimica et Cosmochimica Acta.

Automated LA GC-IRMS extraction line for $\delta^{13}C$ and $\delta^{18}O$ of bioapatite. 2011, Johns Hopkins University. A partially automated extraction line for laser-ablation gas chromatography isotope ratio mass spectrometry analysis of $\delta^{13}C$ and $\delta^{18}O$ of bioapatite (including fossil teeth) and carbonates. The system couples a CO_2 laser to a helium flow-through sample chamber and gas extraction / clean–up lines, to a capillary GC column and continuous flow IRMS. The system is controlled by custom–written Labview software. The basic design is based on the manual extraction line and sample chamber described by Passey and Cerling (2006), Chemical Geology.

Automated extraction line for high-precision clumped isotope analysis of carbonates (w/ John Eiler). Original build 2007–2008, Caltech. Duplicate instruments constructed at Caltech and Johns Hopkins (2009–2010). An automated common acid bath device and flow-through / back-purge GC column for extracting and purifying CO_2 from carbonate minerals, for clumped isotope (Δ_{47}) analysis. The system is controlled by custom–written Labview software, and features a cartesian robot for placement of cryogen dewars on cold traps. The system achieves sub-15 ppm precision for the Δ_{47} measurement, and is described in Passey et al. (2010), PNAS.

FIELDWORK

May 2024	USA: Guadalupe Mountains, SE New Mexico. Laminated soil carbonates as records of Quaternary climate.
2021–present	USA: Idaho, Wyoming, Utah, Nebraska, Texas, New Mexico, Arizona, Colorado: Collection of meteoric waters, focusing on mountain streams and rivers, for baseline triple oxygen isotope database.
September 2021	USA: Capitol Reef / Fish Lake Plateau, Southern Utah. Laminated soil carbonates as records of Quaternary climate.

November 2011	Egypt: Fayum Depression, Eocene / Oligocene fluvial / nearshore marine paleoenvironments and paleoclimate.
July 2010	USA: Bighorn Basin, Wyoming: Early Eocene fluvial systems, paleosols, and stable isotope studies.
July 2007, 2008	China (Inner Mongolia and Ninxia Province): Paleoenvironments of middle Miocene fossil mammals. Fluvial sedimentology and stable isotope stratigraphy.
September 2004, 2005	China (Shanxi Province): Aeolian/fluvial sedimentology and stable isotope stratigraphy of the late Neogene 'hipparion' red clay and loess deposits.
August 2003	Australia: Continent-wide sampling of modern faunal remains, plants, and natural waters for stable isotope ecology studies.
March 1999 – June 2004	USA: Cosmogenic isotope exposure age studies in the Colorado Plateau, including Capitol Reef and Grand Canyon National Parks.
Dec. 2001, June 2002	Argentina (Catamarca Province): Tephrastratigraphy and stable isotope survey of late Miocene through Pleistocene fluvial deposits.
Aug. 2000	Kenya: Turkana basin stratigraphy relevant to paleoenvironments of human evolution, and modern floral and faunal collections from national parks.
Feb. 1999	Ethiopia: Initial restudy of Kibish Formation, Ethiopia, to determine stratigraphic placement and age of early *Homo sapiens*

INVITED TALKS (Meetings, Symposia, Workshops)

December 2020:	Reviews in Mineralogy and Geochemistry Short Course: Triple Oxygen Isotope Geochemistry. December 18, 2020 (Zoom). Talk Title: "Triple oxygen isotopes in carbonates, biological apatites, and continental paleoclimate reconstruction."
September 2019:	Geological Society of America Annual Meeting, Phoenix, Arizona, USA, Session 220 T106: Biogeochemical signatures of fossils: From paleoclimate to diagenesis. Talk title: "The vertebrate triple oxygen isotope CO_2 barometer: Progress and challenges."
November 2018:	Geological Society of America Annual Meeting, Indianapolis, Indiana, USA, Session T118: Paleoenvironmental reconstructions from Biogenic Carbonates. Talk title: "Triple oxygen isotopes in terrestrial biominerals: A new tool for environmental and ecological reconstruction."

October 2016: Geological Society of America Annual Meeting, Denver, Colorado, USA, Session T157: Mineral equilibria, fluid flow and metamorphism: A celebration of John Ferry's career. Talk title: "Solid-state carbonate clumped isotope thermometry: Progess and applications."

October 2014: Geological Society of America Annual Meeting, Vancouver, BC, Canada, Session T126: Stable and clumped isotope record of topography, climate, and environments: Challenges and recent advances. Talk title: "Triple oxygen isotopes in the study of terrestrial paleoenvironments: Advances and opportunities."

June 2014: The 24th V.M. Goldschmidt Conference, Sacremento, Session 9d: Advances in Chemical, Biologic and Biogeochemical Proxies for Terrestrial Paleoclimate Reconstruction. Talk title: "Triple oxygen isotopes in terrestrial carbonates"

October 2013: Geological Society of America Annual Meeting, Denver, Colorado, USA Session T240: Advances in the Application of Biogeochemical Datasets in Paleoenvironmental and Paleoecological Studies. "Triple oxygen isotope compositions of carbonates: New tools for terrestrial paleoenvironmental research"

November 2012: Paleontological Society Short Course at the Geological Society of America Annual Meeting, Charlotte, NC, USA: Reconstructing Earth's Deep Time Climate. Talk title: "Reconstructing terrestrial environments using stable isotopes in fossil teeth and paleosol carbonates."

November 2012: Geological Society of America Annual Meeting, Charlotte, NC, USA, Session T127, Terrestrial Proxies of Paleoclimate and Paleoenvironment in Deep Time. Talk title "Carbonate clumped isotope thermometry of paleosol carbonates."

April 2012: Climate Change / Human Evolution Workshop, Lamont-Doherty Earth Observatory, Palisades, NY, April 21-22 2012. Talk title: "Thermal environments of human evolution based on carbonate clumped isotope thermometry."

August 2011: Second International Clumped Isotope Workshop, London, August 2011. Talk title: "Experimental studies of C-O bond reordering in calcite: Relevance to preservation and thermal history of carbonates."

July 2011: (Keynote) 17th International Congress on the Carboniferous and Permian, Perth, Australia, July, 2011. Talk title: "Deep-time paleoclimate reconstruction using carbonate clumped isotope thermometry: A status report."

April 2010: First International Meeting on Clumped Isotope Geochemistry, Seattle, WA, April 15-17, 2010. Talk title: "Environments of human evolution in East Africa based on the 'clumped isotope in carbonate' (Δ_{47}) thermometer."

June 2005: First International Workshop on Taphonomy and Biochemistry Applied to Human and Environmental Sciences, Paris, France, June 2005. Talk title: "The role of x-ray microCT, linear systems, and inversion theory in the meaningful interpretation of intra-tooth isotope profiles."

INVITED TALKS (Departmental Seminars)

October 2023: University of New Mexico, Dept. of Earth & Planetary Sci.
May 2015: University of Michigan, Dept. of Earth & Environ. Sci.
May 2015: Harvard University, Dept. of Earth & Planetary Sci.
April 2013: Tulane University, Dept. Earth & Environmental Sci.
March 2013: University of Maryland, Geochemistry Group Seminar
March 2013: Rutgers University, Earth & Planetary Sciences
October 2012: Texas A&M University, Department of Geology & Geophysics
February 2012: University of Florida, Department of Geological Sciences
February 2012: University of Minnesota, Department of Geology & Geophysics
January 2012: Syracuse University, Department of Earth Sciences
September 2011: University of Maryland, Geochemistry Group Seminar
September 2011: University of Utah, Department of Geology & Geophysics
May 2011: Carnegie Institute of Washington, Geophysical Lab
March 2011: ETH Zurich, Department of Earth Sciences
January 2011: Southern Methodist University, Department of Earth Sciences
December 2010: Princeton University, Department of Geosciences
September 2010: University of Maryland, Department of Geology
September 2009: Johns Hopkins University, Dept. Geography & Envir. Engineering
October 2009: Carnegie Institute of Washington, Geophysical Lab
December 2008: UC Santa Cruz, Department of Earth & Planetary Sciences
May 2008: UC Irvine, Department of Earth System Science
May 2008: Johns Hopkins University, Dept. of Earth & Planetary Sciences
February 2008: Lehigh University, Dept. of Earth & Environmental Science

PROFESSIONAL MEETING TALKS & POSTERS (underline = student or postdoc primary advisee. **M** = includes data from the UofM Isopaleolab; * = includes data from JHU stable isotope lab)

2024

*Hare VJ, Yarian D, Faith T, Harris C, Lee-Thorp J, Passey BH, Sokolowski K, Ségalen L, Triple oxygen isotopes in eggshell carbonate as a proxy of late Cenozoic CO2 and primary productivity. Goldschmidt 2025 Conference, Prague, Czech Republic, 6 – 11 July 2025.

MAsmerom Y, Passey BH, Polyak VJ, Hong J, Stock GM, Insights into LGM-Holocene hydroclimate variability in SW North America from clumped carbon and oxygen isotope data. Goldschmidt 2025 Conference, Prague, Czech Republic, 6 – 11 July 2025.

2024

Katz Sarah A, Levin NE, Rodbell DT, Abbott MB, Passey BH, Katz Scott A. Orbital-pacing of South American Monsoon Strength and Regional Water Balance: New Evidence from Triple

Oxygen Isotopes (Invited). *American Geophysical Union Fall Meeting*, Washington, DC, USA, December 2024.

Fetrow AC, Levin NE, Passey BH, Zimmerman SRH, Gronewold AD. Connecting Paleo to Present Evaporation Estimates using Mono Lake Water and Carbonate Triple Oxygen Isotopes and an Isotope Evaporation Model. *American Geophysical Union Fall Meeting*, Washington, DC, USA, December 2024.

Asmerom Y, Passey BH, Polyak VJ, Hong J, Stock Greg M. Continental temperature constraints from clumped isotope measurements of cave pool deposits. *American Geophysical Union Fall Meeting*, Washington, DC USA, December 2024.

Hong J, Huth TE, Parmenter DS, Edwards RL, Katz SA, Levin NE, Wang X, Aulerf AS, Cruzg FW, Passey BH. Dual-clumped Isotope Measurements of Speleothems from Paraíso Cave, Eastern Amazon Lowlands, and Paleotemperature Reconstruction. *9th International Clumped Isotope Workshop*, Stony Brook, NY USA, August 2024.

Katz SA, Levin NE, Passey BH, Rodbell DT, Abbott MB, Smith G, Rao A. Application of a Two-Point D47 Mixing Model to Mixed-Source Lacustrine Carbonate and Implications for Isotope-Based Paleoclimate Reconstructions. *9th International Clumped Isotope Workshop,* Stony Brook, NY USA, August 2024.

Katz Sarah A, Levin NE, Rodbell DT, Abbott MB, Passey BH, Katz Scott A. Triple oxygen isotopes reveal large, orbitally-paced swings in South American monsoon strength and regional water balance. Goldschmidt Conference, Chicago, IL USA, August 2024.

2023

Katz S, Levin N, Abbot M, Rodbell D, Passey B, Large swings in tropical water balance during a "weak" interglacial (MIS 15) suggest a link to precession-induced monsoon variability *Abstracts with Programs - Geological Society of America*, 55, *Geological Society of America, 2023 annual meeting; GSA connects 2023*, 2023

Mahan S, Ellwein AL, Marchetti D, Huth T, Cerling T, Passey B, Using luminescence dating, cosmogenic dating, and soil stratigraphy to provide context for paleoclimate archives from laminated pedogenic carbonate rinds, Capitol Reef National Park region, Utah (USA). *Abstracts with Programs - Geological Society of America*, 55, *Geological Society of America, 2023 annual meeting; GSA connects 2023*, 2023

MEllis NM, Passey BH, High temperature conversion-methanation-fluorination; a novel method for high-precision triple oxygen isotope measurements. Abstracts with Programs - Geological Society of America, 55, Geological Society of America, 2023 annual meeting; GSA connects 2023, 2023

2022

MEllis NM, Passey BH, High-precision triple oxygen isotope analysis of diverse materials using high-temperature conversion-methanation-fluorination isotope ratio mass spectrometry.

Session V35A-05, American Geophysical Union Annual Meeting, Chicago, Illinois, 14 December 2022.

[M]Huth T, Marchetti DW, Passey B, Cerling TE, Ellwein A, Mahan S, Bard EG, Rostek F, Tuna T, High-resolution analytical techniques in the development of a novel paleoclimate archive: Laminated soil carbonate rinds as a tool for investigating late Quaternary climate-vegetation links. Session PP5C-0441, American Geophysical Union Annual Meeting, Chicago, Illinois, 14 December 2022.

[M]Rhodes R, Passey B, Hyland E, Sheldon N, Environmental conditions of Eocene Lake Gosiute and geochemical evidence for high topography runoff. Session 146-4, Geological Society of America Annual Meeting, Denver, Colorado, 11 October 2022.

[M]Ellis NM and Passey BH, Early Eocene global gross primary production from triple oxygen isotope measurements of fossil teeth. Session 9dT2, VM Goldschmidt Annual Meeting, Honolulu, Hawaii, 12 July 2022.

2021

[M]Huth T, Liang Y, Parmenter D, Passey B, Edwards RL, Li X, Zhao K, Wang Y, Kong X, Wang X, Cruz FW, Auler AS, Triple oxygen isotopes of speleothems in the Amazon and southern China provide independent support for prior d18O-based interpretations. Session PP15B-0917 American Geophysical Union Fall Meeting, New Orleans, Louisiana, December 13–17, 2021.

[M]Passey BH, Packard NR, Kelson JR, Sheldon ND, Niemi NA, Rhodes RL, Hyland EG, Carroll AR, Triple oxygen isotope paleohydrology of early Eocene paleolake Gosiute (Wyoming, USA). T70 Diversity of Cenozoic Western North American Lakes. GSA Annual Meeting.

[M]Katz SA, Levin NE, DeLuca NM, Passey B, Rodbell DT, Abbott MB, Holocene temperature and water budget records from the tropical-latitude Andes (11 S) using clumped isotope (Δ_{47}) and triple oxygen isotope ($\Delta'^{17}O$) measurements of lake carbonates from Lake Junin and Laguna Pumacocha, Peru. GC019 Changes and impacts of climate variability in South America. AGU Annual Meeting.

[M]Kelson J, ¶Huth T, Passey B, Levin N, Using triple oxygen isotopes of pedogenic carbonate to identify ancient evaporation: First steps from modern soils. EGU general Assembly 2021, online, 19–30 Apr 2021, EGU21-1311.

2020

[M]Huth TE, Passey BH, Cole JE, Lachniet MS, Levin NE, Using triple oxygen isotopes to constrain speleothem paleorecord interpretation in western USA cave systems. Session PP048, American Geophysical Union Fall Meeting (Virtual), December 1–17, 2020.

[M]Kelson J, Petersen SV, Niemi NA, Passey B, Deltas in an estuary: clumped and triple oxygen isotope analyses reveal isotopically depleted headwaters in the early Eocene of Southern CA. Session PP024, American Geophysical Union Fall Meeting (Virtual), December 1–17, 2020.

MKatz SA, Levin NE, Rodbell DT, Gillikin DP, Passey B, Reconstructing precipitation $d^{18}O$ from lacustrine carbonates using $\delta^{18}O$, Δ_{47}, and $\Delta'^{17}O$: a modern case study from Junin, Peru, with implications for paleoclimate. Session PP048, American Geophysical Union Fall Meeting (Virtual), December 1–17, 2020.

MBeverly EJ, Levin NE, Passey BH, Aron PG, Page M, Yarian D, Pelletier E, A new proxy for regional paleo-aridity using clumped and triple oxygen isotopes of modern soil carbonates from the Serengeti Ecosystem, Tanzania. Session T59, Annual Meeting of the Geological Society of American (GSA Connects Online), 26–30 October, 2020

MHuth T, Passey B, Cole J & Levin N, Triple Oxygen Isotopes in Speleothems: A Case Study from Cave of the Bells, AZ, USA. Session 14d, Goldschmidt Annual Meeting (Virtual), 21–26 June, 2020.

MKelson J, Huth T, Levin N & Passey B, Fingerprinting Soil Water Evaporation with Triple Oxygen Isotopes of Pedogenic Carbonates. Session 14d, Goldschmidt Annual Meeting (Virtual), 21–26 June, 2020.

2019

(Invited) Passey BH, Hu H, Wasiljeff J, The vertebrate triple oxygen isotope CO_2 barometer: Progress and challenges. Geological Society of America Annual Meeting, Phoenix, Arizona, USA, September 22-25, 2019.

MPackard NR, Passey BH, Triple oxygen isotope signatures of evaporation at Bear Lake, Utah, since the Last Glacial Maximum. Annual Meeting of the American Geophysical Union, San Francisco, California, December 9 – 13, 2019.

2018

M*Brenner DC, Viete DR, Passey BH, Reaction kinetics in the Alta Stock contact metamorphic aurole, Utah: Insights from carbonate clumped isotope geothermometry. Annual Meeting of the American Geophysical Union, Washington, D.C., USA, December 10-14, 2018.

*(Invited) Passey BH, Hu H, Lehmann SB, Winkelstern IZ, Levin NE, Triple oxygen isotopes in terrestrial biominerals: A new tool for environmental and ecological reconstruction. Geological Society of America Annual Meeting, Indianapolis, Indiana, USA, 4–7 November, 2018.

MBeverly E, Levin NE, Passey BH, Quade J, Oxygen isotope variation in pedogenic carbonates and the potential to constrain paleoaridity. Goldschmidt Annual Meeting, Boston, 12–17 August, 2018.

MWinkelstern I and Passey BH, Variability in $\Delta^{17}O$, $\delta^{18}O$, and δD across six hydrologically diverse lake systems. Goldschmidt Annual Meeting, Boston, 12–17 August, 2018.

*Passey BH, Ji H, Winkelstern I, On the use of triple oxygen isotopes in evaporated lake systems to reconstruct $\delta^{18}O$ of unevaporated precipitation. Goldschmidt Annual Meeting, Boston, 12–17 August, 2018.

2017

Brenner DC, Passey BH, Computational modeling of carbonate clumped-isotope bond reordering. 6th International Clumped Isotope Workshop, Paris, France, August 10–12, 2017.

2016

*(Invited) Passey BH, Brenner D, Henkes GA, Ji H, Solid-state carbonate clumped isotope thermometry: Progress and applications. Geological Society of America Annual Meeting, Denver, Colorado, USA, 25–28 September, 2016.

*Brenner D, Passey B, Effects of water on carbonate clumped isotope bond reordering kinetics (poster). 5th International Clumped Isotope Workshop, St. Petersburg, Florida, USA, 6–9 January 2016.

2015

*Brenner D, Passey B, Effects of water on carbonate clumped isotope bond reordering kinetics (talk). American Geophysical Union Fall Meeting, San Francisco, California, USA, 14–18 December 2015.

*Grossman E, Henkes G, Passey B, Shenton B, Yancey T, Perez-Huerta A, The evolution of Phanerozoic seawater – isotope paleothermometry finds consensus on Early Paleozoic warmth and constant seawater $\delta^{18}O$. American Geophysical Union Fall Meeting, San Francisco, California, USA, 14–18 December 2015.

*Hu H, Passey B, Lehmann S, Levin N, Montanari S, Chin K, Johnson B, Triple oxygen isotopes and clumped isotopes in modern vertebrate and dinosaur biominerals: Records of paleoecology, paleoaridity, and paleo-carbon-cycling. American Geophysical Union Fall Meeting, San Francisco, California, USA, 14–18 December 2015.

*VanPlantinga A, Grossman E, Passey B, Randklev C, Clumped isotope verification of $\delta^{18}O$-based freshwater mussel shell growth chronology for a high-resolution climate and river discharge record. American Geophysical Union Fall Meeting, San Francisco, California, USA, 14–18 December 2015.

*Huth TE, Cerling TE, Bowling DR, Marchetti DW, Passey BH, Soil carbonate pendants from southern Utah as a new paleorecord: Demonstrating pendant formation during summer. Geological Society of America Annual Meeting, Baltimore, Maryland, USA, 1–4 November 2015.

*Lehmann SB, Levin NE, Passey BH, Cerling TE, Hu, H, Triple oxygen isotopes in teeth: Implications for reconstructing paleoaridity. Geological Society of America Annual Meeting, Baltimore, Maryland, USA, 1–4 November 2015.

*Henkes GA, Yancey TE, Grossman EL, Passey BH, Schrag DP, Temperatures of Chicxulub carbonate accretionary lapilli formation from clumped isotopes. Geological Society of America Annual Meeting, Baltimore, Maryland, USA, 1–4 November 2015.

2014

*(Invited) Henkes G, Passey B, Grossman E, Shenton B, Perez-Huerta A, Preservation of carbonate clumped isotopes in sedimentary paleoclimate archives. American Geophysical Union Fall Meeting, San Francisco, CA, USA, 15–19 December 2014.

*Shenton B, Grossman E, Passey B, Henkes G, Laya J, Perez-Huerta A, Clumped isotope thermometry in deeply buried sedimentary carbonates: The effects of C-O bond reordering and recrystallization. American Geophysical Union Fall Meeting, San Francisco, CA, USA, 15–19 December 2014.

Snell K, Eiler J, Wernicke B, Peppe D, Fox D, Fetrow A, Passey B, Disentangling topographic and climatic change during the Late Cretaceous and Cenozoic in the Western US Cordillera. American Geophysical Union Fall Meeting, San Francisco, CA, USA, 15–19 December 2014.

*Thiagarajan N, Passey B, Keeling R, Eiler J, Seasonal variations of stable, including clumped, isotopologues of CO_2 in air: Initial observations from La Jolla, CA. American Geophysical Union Fall Meeting, San Francisco, CA, USA, 15–19 December 2014.

*VanDeVelde J, Price G, Passey B, Grimes S, Early Cretaceous ocean dynamics from clumped isotope thermometry. American Geophysical Union Fall Meeting, San Francisco, CA, USA, 15–19 December 2014.

*(Invited) Passey BH, Levin NE, Ji H, Li S, Hu H Triple oxygen isotopes in the study of terrestrial paleoenvironments: Advances and opportunities. Geological Society of America Annual Meeting, Vancouver, BC, Canada, 19–22 October, 2014.

*Hu H, Passey BH, Montanari S, Chin K Constraints on late Jurassic and Cretaceous atmospheric pCO_2 and primary productivity from triple oxygen isotopes in dinosaur eggshells. Geological Society of America Annual Meeting, Vancouver, BC, Canada, 19–22 October, 2014.

*Ji H, Passey BH, Li S, Levin NE Triple oxygen isotopes in soils and lakes. Geological Society of America Annual Meeting, Vancouver, BC, Canada, 19–22 October, 2014.

*Fan M, Hough B, Passey BH Middle to late Cenozoic high topography and climate cooling in the central Rocky Mountains: Constraints from clumped isotope geothermometry. Geological Society of America Annual Meeting, Vancouver, BC, Canada, 19–22 October, 2015.

*Ayyash S, Fan M, Passey BH, Griffith EM Late Eocene-early Oligocene paleoclimate and paleoenvironment from the White River Formation in eastern Wyoming. Geological Society of America Annual Meeting, Vancouver, BC, Canada, 19–22 October, 2015.

*(Invited) Passey BH, Hu H, Ji H, Montanari S, Li S, ¶Henkes GA, Levin NE Triple oxygen isotopes in terrestrial carbonates. *24th V.M. Goldschmidt Meeting, Sacramento, CA, 8–13 June 2014.*

Kaakinen A, Aziz HA, Passey BH, Zhang Z, Liping L, Krijgsman W, Fortelius M. Stratigraphical investigations on a new Miocene fossil-bearing sequence in Central Inner Mongolia, China. *EGU General Assembly 2014, Vienna, Austria, 27 April – 2 May, 2014.*

2013

*(Invited) Henkes GA, Passey BH, Grossman EL, Pérez-Huerta A, Shenton B, Yancey TE. Constraints on Phanerozoic paleotemperature and seawater oxygen isotope evolution from the carbonate clumped isotope compositions of Late Paleozoic marine fossils. *Annual Meeting of the American Geophysical Union, San Francisco, USA, December 9–13, 2013.*

*Hu H, Passey BH, Montanari S, Levin N, Li S. A deep-time CO_2 barometer based on triple oxygen isotope compositions of dinosaurian eggshell carbonate. *Annual Meeting of the American Geophysical Union, San Francisco, USA, December 9–13, 2013.*

*Shenton B, Grossman EL, Passey BH, Henkes GA, Becker SP, Pottorf RJ. Thermal history of the Mississippian-Pennsylvanian boundary at Arrow Canyon, NV, USA: Insights from carbonate clumped isotopes and fluid inclusion microthermometry. *Annual Meeting of the American Geophysical Union, San Francisco, USA, December 9–13, 2013.*

*(Invited) Passey BH, Levin NE, Hu H, Li S, Ji H, Henkes GH. Triple oxygen isotope compositions of carbonates: New tools for terrestrial paleoenvironmental research. *Geological Society of America Annual Meeting, Denver, Colorado, USA. October 27-30, 2013.*

*Fan M, Hough B, Passey B. Late Miocene atmospheric circulation and high topography in the Central Rocky Mountains: Constraints from integrated carbonate clumped isotope and volcanic glass hydrogen isotope studies. *Geological Society of America Annual Meeting, Denver, Colorado, USA. October 27-30, 2013.*

*Levin NE, Bedaso ZK, Passey BH, Quade J. Pliocene warmth and ecosystem change in Eastern Africa. *Geological Society of America Annual Meeting, Denver, Colorado, USA. October 27-30, 2013.*

*Passey BH, Hu H, Montanari S, Li S, Levin NE, Triple oxygen isotope compositions of late Cretaceous dinosaur eggshells and implications for atmospheric carbon dioxide. *The 23rd V.M. Goldschmidt Conference, Florence, Italy, August 25–30, 2013.*

*Henkes GA, Rick TC, Passey BH, Carbonate clumped isotope thermometry of archaeological shell from the Chesapeake Bay. *Society for American Archaeology 78th Annual Meeting, Honolulu, Hawaii, April 3–7, 2013.*

2012

*(Invited) Passey BH, Carbonate clumped isotope thermometry of paleosol carbonates. *2012 Geological Society of America Annual Meeting, Charlotte, North Carolina, November 4-7, 2012.*

*Henkes GA, Grossman EL, Yancey TE, Passey BH Clumped isotope thermometry of Carboniferous brachiopods and the effects of burial heating. *The 22nd V.M. Goldschmidt Conference, Montreal, Canada, June 24029, 2012.*

*Passey BH, Henkes GA Carbonate clumped isotope closure temperatures. *The 22nd V.M. Goldschmidt Conference, Montreal, Canada, June 24-29, 2012.*

*Guo W., Kim S-T, Yuan J, Farquhar J, Passey BH ^{13}C-^{18}O bonds in dissolved inorganic carbon: Toward a better understanding of the clumped isotope thermometer in biogenic carbonates. *The 22nd V.M. Goldschmidt Conference, Montreal, Canada, June 24-29, 2012.*

*Sandberg P, Passey B, Lee-Thorp J., Sponheimer M, Ditchfield P, Van Gervin D Intra-tooth stable isotope analysis of human dental tissues: laser ablation of enamel and serial sections of dentine collagen in permanent first molars and canines. *The 81st Annual Meeting of the American Association of Physical Anthropologists, Portland, USA, April 2012.*

2011

*Suarez MB, Passey BH, Carbonate clumped isotope thermometry of fossil bone and dentin: Prospects for use as a ground temperature thermometer. *Geological Society of America Annual Meeting, Minneapolis, Minnesota. October 2011.*

*Passey BH, Suarez MB, Kaakinen A, Late Miocene and Pliocene East Asian monsoon circulation inferred from multiple-isotopologue signatures of paleosol carbonates from northern China. *Geological Society of America Annual Meeting, Minneapolis, Minnesota. October 2011.*

*Kraft RA, Levin NE, Passey BH, Rose KD, Chew AE, Early Eocene paleoenvironments in Wyoming based on stable isotope ecology of fossil mammals. *Geological Society of America Annual Meeting, Minneapolis, Minnesota. October 2011.*

*Kaufman AJ, Peng Y, Passey BH, Mineralogical control on carbonate clumped isotope temperatures from a Neoproterozoic cap carbonate in Brazil. *Geological Society of America Annual Meeting, Minneapolis, Minnesota. October 2011.*

*(Invited) Passey BH, Henkes G, Experimental studies of C-O bond reordering in calcite: relevance to preservation and thermal history of carbonates. *2nd International Clumped Isotope Workshop, London, August 2011.*

*(Keynote) Passey BH, ¶Henkes G, Grossman EL, Yancey TC, Reconstructing deep-time paleoclimate using carbonate clumped isotope thermometry: A status report. *17th International Congress on the Carboniferous and Permian, Perth, Australia, July, 2011.*

2010

*(Invited) Henkes GA, Price GC, Ambrose WG, Carol ML, Passey BH Clumped isotope thermometry of modern and early Cretaceous molluscan carbonate from high-latitude seas. *Annual Meeting of the American Geophysical Union*, *San Francisco, USA. December 2010.*

*Suarez MB, Passey BH, Kaakinen A, Pliocene and late Miocene soil temperatures in the Chinese Loess Plateau based on clumped-isotope thermometry of paleosol carbonates. *Annual Meeting of the American Geophysical Union*, *San Francisco, USA. December 2010.*

*Kraft RA, Levin NE, Mueller RG, Passey BH, Joyce A, Isotopic record of Holocene paleoclimate from paleosols in the Nochixtlan Valley, Oaxaca, Mexico. *Geological Society of America Annual Meeting, Denver, Colorado. October 2010*.

*VanDeVelde JH, Bowen GJ, Passey BH, A clumped isotope hydroclimatologic record through the Paleocene-Eocene thermal maximum in southwestern North America. *Geological Society of America Annual Meeting,* Denver, *Colorado. October 2010.*

*Passey BH. Experimental study of solid-state ^{13}C-^{18}O bond reordering in calcite. *20th Annual Goldschmidt Conference, Knoxville, TN. June 2010.*

*Price, GD, Passey BH. Carbonate clumped-isotope paleothermometry of sub-Arctic early Cretaceous fossils. *20th Annual Goldschmidt Conference, Knoxville, TN, June 2010.*

(Invited) Passey BH, Quaternary Research Center Spring Workshop: 'Clumped isotopes in recent and fossil soil carbonates' *First International Meeting on Clumped Isotope Geochemistry, Seattle, WA, April 15-17, 2010.*

2009 and earlier

Passey BH, JM Eiler, M Daëron, J Quade, CN Garzione, JJ Smith, TE Cerling, NE Levin 'Clumped isotope' paleothermetry of soil carbonates: a status report. *EOS Trans. 90(52) AGU, Fall Meet. Suppl., AbstractPP12B-01, December 2009.*

Passey BH, JM Eiler, NE Levin, TE Cerling, 'Barefoot on hot ground: Formation temperatures of Plio-Pleostocene soil carbonates in East Africa based on the clumped isotope in carbonate (Δ_{47}) thermometer'. *EOS Trans. AGU, 89)53), Fall Meet. Suppl., Abstract PP11D-02. December 2008.*

Passey BH, TF Robinson, JW Singer, TE Cerling, "Cut-and-dried: leaf water is the primary amplifier of an aridity signal in animal body water $\delta^{18}O$". *Isoecol VI, Honolulu, HI, August 2008.*

Passey BH, LK Ayliffe, TE Cerling, M Fortelius, A Kaakinen, JT Eronen, ZQ Zhang, "A regionally resolved history of C_4 vegetation in North China since the late Miocene", *2nd International Palaeontological Congress, Beijing, China, June 2006*

Passey BH, M Fortelius, A Kaakinen, YM Zhu, ZQ Zhang, LP Zhou, "Paleoenvironments and mammal communities of the Late Neogene Red Clay at Baode, Shanxi, North China", *Society of Vertebrate Paleontology, Mesa, Arizona, October 2005.*

Passey BH, TE Cerling, "Equid $\delta^{18}O$ in the Neogene of Nebraska: Relationship with ungulate diversity, and discussion of mammalian $\delta^{18}O$ as a paleoenvironmental proxy", *Society of Vertebrate Paleontology, Mesa, Arizona, October 2005.*

(Invited) Passey BH, TE Cerling, "The role of x-ray microCT, linear systems, and inversion theory in the meaningful interpretation of intra-tooth isotope profiles", *First International Workshop on Taphonomy and Biochemistry Applied to Human and Environmental Sciences, Paris, France, June 2005.*

Passey BH, Cerling TE, "Improvements in laser ablation GC/IRMS ($\delta^{13}C$, $\delta^{18}O$) methodology for isotopic analysis of small bioapatite samples", *Geological Society of America North Central Section, Minneapolis, Minnesota, May 2005.*

Passey BH, Cerling TE, Chan MA, Dam Fun: Interactive teaching of sedimentological and hydrological principles using a see-through dam-reservoir model", *Geological Society of America Annual Meeting, Seattle, Washington, November 2003.*

Passey BH, Cerling TE, Shuster GR, Inversion of stable isotope signals in tooth enamel: recovering the primary isotope time-series", *Geological Society of America Annual Meeting, Seattle, Washington, November 2003.*

Passey BH, Cerling TE, Ayliffe LK, Sponheimer M, Hammer J, Robinson TF, Roeder B, "Seasonal isotopic data from Nebraska fossil horses, and insights from developing cow molars", *Society of Vertebrate Paleontology, Bozeman, Montana, October 2001.*

Passey BH, Cerling TE, Perkins M, Tucker ST, Voorheis MR, "Timing and nature of C_4 biomass expansion in Nebraska" *Geological Society of America Annual Meeting, Denver, Colorado. October 1999.*