

## Curriculum Vitae

### Timothy M. Gallagher

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#### EDUCATION

- Ph.D. University of Michigan, Geology, 2016  
*GPA: 4.0/4.0, Supervisor: Nathan Sheldon*
- M.S. University of Michigan, Geology, 2013  
*GPA: 4.0/4.0, Supervisor: Nathan Sheldon*
- B.Phil. University of Pittsburgh, Geology, 2010
- B.A. University of Pittsburgh, Anthropology, 2010  
*Magna cum laude, GPA: 3.5/4.0*

#### RESEARCH EXPERIENCE

- 2020 – Assistant Professor, Kent State University (*Starting August 2020*)
- 2019 – 2020 Postdoctoral Fellow, Dept. Geological Sciences, University of Texas at Austin
- 2017 – 2018 NSF EAR Postdoctoral Fellow, University of Texas at Austin
- 2011 – 2016 Graduate Student Research Fellow, University of Michigan, Continental Environments Research Group, Stable Isotope Lab
- 2010 – 2011 Visiting Researcher, University of Gothenburg, Marine Geology Group

#### AWARDS AND FELLOWSHIPS

- 2017 National Science Foundation – Earth Sciences Postdoctoral Fellowship
- 2017 John Dorr Graduate Achievement Award, University of Michigan
- 2011 National Science Foundation – Graduate Research Fellowship (3 years)  
Henry Pollack Fellowship, University of Michigan
- 2010 Fulbright Grant to Sweden  
Phi Beta Kappa

#### GRANTS AND EXTERNAL FELLOWSHIPS

*Total Funding to Date: \$641,618*

- 2019 NSF EAGER SitS: Studying soil biotic and abiotic processes through continuous, high-precision monitoring of soil CO<sub>2</sub> and O<sub>2</sub> concentrations,” Award #: 1841641 (\$298,057) (Co-written as postdoctoral PI)
- 2016 NSF Earth Sciences Postdoctoral Fellowship: “Developing a process based understanding of the factors controlling the seasonal formation of pedogenic carbonate,” Award #: 1625146 (\$174,000)

- 2015 Geological Society of America Graduate Student Research Grant (\$1,250)  
Scott Turner Award in Earth and Environmental Sciences (\$1,800)  
Rackham Conference Travel Grant (\$800)
- 2014 American Association of Petroleum Geologists Grant (\$3,000)  
Scott Turner Award in Earth and Environmental Sciences (\$1,800)  
Rackham Conference Travel Grant (\$1,050)  
Geochemical Society Travel Grant (\$450)  
Geological Society of America Travel Grant (\$100)
- 2013 Rackham Graduate Research Grant (\$1,500)  
Geological Society of America Graduate Student Research Grant (\$2,061)  
Rackham Conference Travel Grant (\$950)
- 2012 Lewis and Clark Exploration and Field Research in Astrobiology Grant (\$5,000)  
Scott Turner Award in Earth and Environmental Sciences (\$2,100)  
Rackham Conference Travel Grant (\$700)
- 2011 NSF Graduate Research Fellowship (\$126,000)  
U.S. Science Support, IODP Travel Grant (\$1,000)
- 2010 Fulbright Fellowship to Sweden (\$20,000)

**PUBLICATIONS***Submitted Manuscripts in Review/Revision:*

**Gallagher, T.M.** and Breecker, D. O, 'The obscuring effects of calcite dissolution and formation on quantifying soil respiration,' *In-Review at Global Biogeochemical Cycles*.

*Peer-Reviewed Manuscripts:*

Kelson, J.R., Huntington, K.W., Breecker, D.O., Burgener, L.K., **Gallagher, T.M.**, Hoke, G.,D. Petersen, S.V., (2020) 'A proxy for all seasons? A synthesis of clumped isotope data from Holocene soil carbonates,' *In-Review at Quaternary Science Reviews*, v. 234, 106259.

**Gallagher, T.M.**, Cacciatore, C.G, Breecker, D.O., (2019) 'Interpreting the difference in magnitudes of PETM carbon isotope excursions in paleosol carbonate and organic matter: Oxidation of methane in soils versus elevated soil respiration rates,' *Paleoceanography and Paleoclimatology*, v. 34, p. 2113-2128.

**Gallagher, T. M.**, Hren, M.T., and Sheldon, N.D., (2019) 'The effect of soil temperature seasonality on climate reconstructions from paleosols,' *American Journal of Science*, v. 319, p. 549-581.

Rico, K.I., Sheldon, N.D., **Gallagher, T.M.**, and Chappaz, A. (2019) 'Redox chemistry and molybdenum burial in a Mesoproterozoic lake,' *Geophysical Research Letters*. v. 46, p. 5871-5878.

Nordberg, K., Polovodova, I., **Gallagher, T.M.**, and Robijn, A., (2017) 'Recent oxygen depletion and benthic faunal change in shallow areas of Sannäs Fjord, Swedish west coast,' *Journal of Sea Research*. v. 127, p. 46-62.

- Gallagher, T.M.**, Sheldon, N.D., Mauk, J.L., Petersen, S.V. Guneli, N., and Brocks, J., (2017) 'Constraining the thermal history of the Midcontinent Rift System using carbonate clumped isotopes and organic thermal maturity indices,' *Precambrian Research*, v. 294, p. 53-66.
- Gallagher, T.M.** and Sheldon, N.D., (2016) 'Combining clumped isotopes and soil water balance to understand the nature and timing of pedogenic carbonate formation,' *Chemical Geology*, v. 435, p. 79-91.
- Cotton, J.M., Sheldon, N.D., Hren, M.T., **Gallagher, T.M.**, (2015) 'Positive feedback drives carbon release from soils to atmosphere during Paleocene/Eocene warming,' *American Journal of Science*, v. 315, p. 337-361.
- Gallagher, T.M.** and Sheldon, N.D., (2013) 'A new paleothermometer for forest paleosols and its implications for Cenozoic climate,' *Geology*, v. 41, p. 647-650.

**INVITED LECTURES**

- 2020 Department of Geological Sciences, University of Florida  
2019 BEES Department, University of Southern Mississippi  
2019 EOAS Department, University of British Columbia  
2019 Department of Geological and Atmospheric Sciences, Iowa State University  
2019 Department of Earth and Atmospheric Sciences, University of Houston  
2019 Department of Geology, Kent State University  
2018 AOES Department, George Mason University  
2018 Department of Geology and Geophysics, Texas A&M University  
2017 Deford Lecture, Jackson School of Geosciences, University of Texas at Austin  
2014 Department of Earth and Space Sciences, Central Michigan University

**PRESS COVERAGE**

- Astrobiology Magazine, Travelogue from Young Researchers in the Field. June, 2013.

**CONFERENCE ABSTRACTS**

- Kelson, J., Huntington, K.W., Breecker D.O., **Gallagher, T.M.**, Hoke, G.D. (2019) Season's greetings or annual averages from paleosol carbonates? Findings from numerical simulations of soil carbonate formation. AGU Fall Meeting, Dec. 9-13, San Francisco, CA.
- Gallagher, T.M.**, Sheldon, N.D., Chappaz, A., Hren, M.T. (2018) The Nonesuch Formation: a promising, albeit complicated, window into terrestrial environments during the Mesoproterozoic. **Invited oral presentation** at GSA Annual Meeting: Nov 4-7, Indianapolis, IN.
- Gallagher, T.M.**, Caldwell, T., Breecker, D.O. (2018) Tracking soil carbonate dissolution and precipitation through high-precision monitoring of soil pore space O<sub>2</sub> and CO<sub>2</sub>. Oral presentation at GSA Annual Meeting: Nov 4-7, Indianapolis, IN.
- Serach, L., Zhang, H., Lu, H., Wang, H., Ji, S., Heitman, E., Gallagher, T.M., Xi, C. Breecker, D.O. (2018) Soil carbonate record of late Miocene and early Pliocene environmental change from the Jiaxian Red Clay section, Northern Loess Plateau, China: GSA Annual Meeting: Nov 4-7, Indianapolis, IN.

- Kelson, J.R., Huntington, K.W., Breecker, D.O., Hoke, G.D., Burgener, L., Gallagher, T.M. (2018) A synthesis of existing clumped isotope data reveals varied seasonal biases in soil carbonate accumulation: GSA Annual Meeting: Nov 4-7, Indianapolis, IN.
- Gallagher, T.M.**, Friedmann, E., Breecker, D.O. (2018) Toward non-destructive, semi-continuous monitoring of calcite precipitation/dissolution in soils. Oral presentation at Goldschmidt Conference: August 12-17, Boston, MA.
- Gallagher, T. M.**, Hren, M.T., and Sheldon, N.D. (2017) The effect of soil temperature seasonality on climate reconstructions from paleosols. Poster presentation at AGU Fall Meeting: December 11-15, New Orleans, LA.
- Rico, K.I., Sheldon, N.D., and **Gallagher, T.M.** (2017) Biogeochemical pathways of nutrient and metal burial in Proterozoic lakes and implications for atmospheric oxygen levels. GSA Annual Meeting: October 22-25, Seattle, WA.
- Rico, K.I., Sheldon, N.D., and **Gallagher, T.M.** (2017) Biogeochemical pathways of nutrient and metal burial in Proterozoic lakes and implications for atmospheric oxygen levels. Geobiology Society Conference, June 11-14, Banff, Canada.
- Gallagher, T.M.**, Sheldon, N.D., Mauk, J.L., Gueneli, N., Brocks, J. (2015), Constraining the thermal history of the Midcontinent Rift System with Clumped Isotopes and Organic Thermal Maturity Indices. Poster presentation at AGU Fall Meeting: December 14-18, San Francisco, CA.
- Gallagher, T.M.** and Sheldon, N.D. (2015), Late Santonian–Campanian paleosols from southwest Utah: Implications for weathering and paleoclimate. Poster presentation at GSA Annual Meeting: November 1-4, Baltimore, Maryland.
- Gallagher, T.M.** and Sheldon, N.D. (2015), Terrestrial Biogeochemistry and Carbon Burial Processes in Mesoproterozoic Lakes of the Mid-Continental Rift System. Poster presentation at Astrobiology Science Conference: June 15-19, Chicago, Illinois.
- Gallagher, T.M.** and Sheldon, N.D. (2014), Redox controls on terrestrial carbon burial in Late Mesoproterozoic rift basin lakes. Oral presentation at GSA Annual Meeting: October 19-22, Vancouver, British Columbia.
- Gallagher, T.M.** and Sheldon, N.D. (2014) Terrestrial Life and Environmental Heterogeneity within the Late-Mesoproterozoic Nonesuch Shale. Poster presentation at Goldschmidt Conference: June 8-13, Sacramento, California.
- Gallagher, T.M.**, and Sheldon, N.D. (2013) Combining  $\Delta_{47}$  and whole-rock geochemical proxies in paleosols to constrain temperature seasonality. Oral presentation at GSA Annual Meeting: October 27-30, Denver, Colorado.
- Gallagher, T.M.**, Sheldon, N.D., Xiao, S. (2013) Clumped isotope thermometry of Neoproterozoic cap carbonates from northwest and southeast China. Poster presentation at Goldschmidt Conference: August 25-30, Florence, Italy.
- Dick, G. J., Kinsman-Costello, L., Sheldon, N.D., Biddanda, B.A., Marcus, D.N., Voorhies, A.A., **Gallagher, T.M.** (2013), Anoxygenic Cyanobacterial Mats in Middle Island Sinkhole, Lake Huron: An Analogue of the Precambrian, Goldschmidt Conference: August 25-30, Florence, Italy.
- Kinsman-Costello, L., Dick, G., Sheldon, N., Burton, A., **Gallagher, T.**, Marcus, D., Balke, M., Snider, M., and Biddanda, B., (2013) Salty Fresh Water: Submerged sinkholes receiving high-

conductance, low-oxygen groundwater inputs harbor unique microbial communities and function, Society for Freshwater Science Conference.

Cotton, J. M., Sheldon, N.D., Hren, M.T., and **Gallagher, T.M.** (2012) Variable magnitude of carbon isotope excursions in organic and inorganic terrestrial carbon pools during the Paleocene/Eocene Thermal Maximum, Abstract PP34A-07 presented at 2012 Fall Meeting, AGU.

**Gallagher, T.M.** and Sheldon, N.D. (2012) A new paleothermometer for forest paleosols and implications for Cenozoic continental paleoclimate. Oral presentation at GSA Annual Meeting: November 4-7, Charlotte, North Carolina.

**Gallagher, T.M.** and Nordberg, K. (2011) Recent oxygen deficiency in shallow waters of fjords on the Swedish west coast: climatically induced or human impact? Poster presentation at Urbino summer school in paleoceanography: Urbino, Italy.

**Gallagher, T.M.** and Capo, R.C. (2010) Origin of Jurassic carbonate nodules in Southeastern Wyoming. Oral presentation at National Conference on Undergraduate Research: April 15-17, Missoula, Montana

### TEACHING EXPERIENCE

2017      GEO 388: *Environmental Isotope Geochemistry*, Guest Lecturer  
 2015      EARTH 446: *Paleoclimatology*, Guest Lecturer  
 2014      EARTH 344: *Sustainable and Fossil Energy*, Graduate Student Instructor  
             EARTH 120: *Geology of the National Parks*, Graduate Student Instructor  
 2013      EARTH 305: *Sediments*, Graduate Student Instructor  
 2009      HONORS 1540: *Wyoming Field Course*, Undergraduate Teaching Assistant  
 2008      GEOL 0055: *Physical Geology Lab*, Undergraduate Teaching Assistant  
             HONORS 1540: *Wyoming Field Course*, Undergraduate Teaching Assistant

### SUPERVISION AND SERVICE

Undergraduate Supervision: S. Leon (2013-2016), D. Boshers (2015), H. Sherman (2015), E. Friedmann (2018), L. Arnold (2018), C. Bland (2019)  
 Mentor, Michigan Undergraduate Research Opportunities Program (2013-2014)  
 Presentation Award Judge, Michigan Undergraduate Research Opportunities Program (2014)  
 Organizer, Michigan Geophysical Union Graduate Student Conference (2012-2015)  
 Development of a new exhibit on Terrestrial Life during the Mesoproterozoic, University of Michigan Natural History Museum (2014)  
 Reviewer for NSF, Science Advances Geology, *Geochimica et Cosmochimica Acta*, *Climate of the Past*, *Palaeogeography*, *Palaeoclimatology*, *Palaeoecology*, *Journal of Geology*  
 Convener for 2017 AGU session 'Past Atmospheric Variability Inferred from Paleoclimate Proxies'

**PROFESSIONAL AFFILIATIONS**

Geological Society of America; The Geochemical Society; American Geophysical Union

**WORKSHOPS ATTENDED**

- 2019 DUST-PIRE Workshop and Summer School; Kona, Hawaii
- 2019 NSF Signals in the Soil Awardees Meeting; Arlington, Virginia
- 2017 DUST-PIRE Workshop and Summer School; Xi'an, China
- 2016 Advanced Practices for Inclusive Teaching; University of Michigan CRLT  
Canvas for GSIs: Pedagogies and Practicalities; University of Michigan CRLT  
Enriching Scholarship: Getting Started with Digital Media Pedagogies; U. Michigan CRLT
- 2015 Preparing Future Faculty; U. Michigan CRLT
- 2011 Urbino Summer School in Paleoclimatology

**FIELD EXPEDITIONS**

- 2019` Pliocene fluvial deposits, Teruel, Spain
- 2017 Permian-Triassic terrestrial sequences, Xinjiang Province, China  
Chinese Loess Plateau Shaanxi Province, China
- 2015 Late Cretaceous terrestrial deposits, Utah, USA
- 2014 Morrison Formation, Late Jurassic, Wyoming, USA
- 2013 Midcontinent Rift System, Northern Michigan and Wisconsin, USA
- 2012 Midcontinent Rift System, Northern Michigan, Wisconsin, Minnesota, USA
- 2010 Morrison Formation, Late Jurassic, Wyoming, USA