

# Margaret L. Fraiser

Curriculum Vitae  
November 17, 2015

University of Wisconsin-Milwaukee  
Department of Geosciences  
Mailstop: PO Box 413  
Office: 3209 North Maryland Avenue  
Lapham 356  
Milwaukee, WI 53211 USA

Tel: +1 (413) 229-3827  
E-mail: [mfraiser@uwm.edu](mailto:mfraiser@uwm.edu)  
<https://margaretfraiser.wordpress.com/>

## EDUCATION

Ph.D., Geological Sciences, University of Southern California, 2005.  
M.S., Geological Sciences, University of Southern California, 2000.  
B.S., Geology, University of Georgia, 1998.

## PROFESSIONAL APPOINTMENTS

UW-Milwaukee, Department of Geosciences, Associate Professor, 2012-present.  
Milwaukee Public Museum, Department of Geology, Adjunct Curator, 2012-present.  
UW-Milwaukee, Department of Geosciences, Assistant Professor, 2006-2012.  
UW-Milwaukee, Department of Geosciences, Adjunct Assistant Professor, 2005-2006.  
University of Southern California, College Graduate Merit Fellow, 2000-2005.

## PUBLICATIONS

### Edited Volumes

- Algeo, T.J., Fraiser, M.L., Wignall, P.W., and Winguth, A.M.E. (Eds.). 2013. New developments in Permian-Triassic paleoceanographic and global climate system research. *Global and Planetary Change* 105: 1-192.
- Chen, Z.-Q., Algeo, T.J., and Fraiser, M.L. (Eds.). 2013. Organism-Environment Interactions During The Permian-Triassic Mass Extinction And Its Aftermath. *PALAIOS* 28 (8): 491-679.
- Chen, Z.-Q., Algeo, T.J., and Fraiser, M.L., and Twitchett, R.J. (Eds.). 2011. Permian - Triassic ecosystems: collapse and rebuilding. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 308 (1-2): 1-252.
- Fraiser, M.L. (Ed.). 2009. Biotic Response to Global Environmental Change: Analogs for the Future of Life on Earth. *Global and Planetary Change*. 65 (3-4): 105-182.

## Refereed Journal Articles

\* denotes student co-author

- \*Dineen, A.A., Fraiser, M.L., and Tong, J. 2015. Low functional evenness in a post-extinction Anisian (Middle Triassic) paleocommunity: A case study of the Leidapo Member (Qingyan Formation), south China. *Global and Planetary Change*. 73: 79-86.
- \*Dineen, A. A., Fraiser, M.L., and Sheehan, P. 2014. Recovery vs. Restructuring: Establishing Ecologic Patterns in Early and Middle Triassic Paleocommunities. *Earth-Science Reviews* 136: 339-349.
- \*Huang, Y., Fraiser, M.L., Tong, J., and Chen, Z.-Q. 2014. Selective extinction among bivalves in South China during the Permian-Triassic crisis. *Palaeogeography, Palaeoclimatology, Palaeoecology* 399: 78-88.
- Clapham, M.E., Fraiser, M.L., Marenco, P.J., and Shen, S. 2013. Taxonomic Composition and Environmental Distribution of Post-Extinction Mixed Faunas: Constraints on Short-Term Survival and the Role of Anoxia in the End-Permian Mass Extinction. *Palaeogeography, Palaeoclimatology, Palaeoecology* 374: 284-292.
- \*Dineen, A.A., Fraiser, M.L., and Isbell, J.L. 2012. Palaeoecology and Sedimentology of Carboniferous Glacial and Postglacial Successions in the Paganzo and Rio Blanco Basins of Northwestern Argentina. *Geological Society, London, Special Publications* 376: 109-140.
- Isbell, J.L., \*Henry, L.C., Reid, C.M., and Fraiser, M.L. 2012. Sedimentology and palaeoecology of limestones-bearing mixed clastic rocks and cold-water carbonates of the Lower Permian Basal Beds at Fossil Cliffs, Maria Island, Tasmania (Australia): Insight into the initial decline of the late Palaeozoic ice age. *Geological Society (London) for a Special Publication* 376: 307-341.
- Marenco, P.J., \*Griffin, J.M., Fraiser, M.L., and Clapham, M.E. 2012. Paleoecology and geochemistry of Lower Triassic (Spathian) microbial mounds from Lost Cabin Spring, Nevada: implications for marine environmental conditions in the aftermath of the End Permian mass extinction. *Geology* 40: 714-718.
- \*Henry, L.C., Isbell, J.L., Fielding, C.R., Domack, E.W., Frank, T.D., and Fraiser, M.L. 2012. Proglacial deposition and deformation in the Upper Carboniferous to Lower Permian Wynyard Formation, Tasmania: a process analysis. *Palaeogeography, Palaeoclimatology, Palaeoecology* 315-316: 142-157.
- Isbell, J.L., \*Henry, L.C., Gulbranson, E.L., Limarino, C.O., Fraiser, M.L., Koch, Z.J., Ciccioli, P. L., and Dineen, A.A. 2012. Glacial paradoxes during the late Paleozoic Ice Age: Evaluating the using the concept of the equilibrium line altitude (ELA) as a control on glaciation. *Gondwana Research* 22: 1-19.
- Chen Z.Q., Fraiser M.L., and \*Bolton C. 2012. Early Triassic trace fossils from Gondwana Interior Sea: Implication for ecosystem recovery following the end-Permian mass extinction in south high-latitude region. *Gondwana Research* 22: 238-255.
- Fraiser, M.L. 2011. Paleoecology of Secondary Tierers from Low-Latitudes of Eastern Panthalassa During the Aftermath of the End-Permian Mass Extinction. *Palaeogeography, Palaeoclimatology, Palaeoecology* 308: 181-189.

- Algeo, T., Chen, Z.Q., Fraiser, M.L., and Twitchett, R.J. 2011. Terrestrial-marine teleconnections in the collapse and rebuilding of Early Triassic marine ecosystems. *Palaeogeography, Palaeoclimatology, Palaeoecology* 308: 1-11.
- Chen, Z. Q., Tong, J., and Fraiser, and M. L. 2011. Trace fossil evidence of restoration of marine ecosystems following the end-Permian mass extinction in the Lower Yangtze region, South China. *Palaeogeography, Palaeoclimatology, Palaeoecology* 299: 449-474.
- \*Henry, L.C., Isbell, J.L., Limarino, C.O., McHenry, L.J., and Fraiser, M.L. 2010. Mid-Carboniferous deglaciation of the Protoprecordillera, Argentina, recorded in the Agua de Jagüel paleovalley. *Palaeogeography, Palaeoclimatology, Palaeoecology* 298: 112-129.
- Chen, Z.Q., Chen, J., Tong, J., and Fraiser, M. L. 2010. Marine ecosystem changes from the latest Permian to Middle Triassic in Qingyan area, Guizhou, Southwest China. *Journal of Earth Science* 21: 125-129.
- \*Bolton C., Chen Z.Q. and Fraiser, M.L. 2010. A new trace-fossil assemblage from the Lower Triassic of Western Australia. *Journal of Earth Science* 21: 115-117.
- Fraiser, M.L., and Bottjer, D.J. 2009. Opportunistic behavior of invertebrate marine tracemakers during the Early Triassic aftermath of the end-Permian mass extinction. *Australian Journal of Earth Sciences* 56: 841-857.
- Bottjer, D.J., Clapham, M.E., Fraiser, M.L., and Powers, C.M. 2008. Understanding mechanisms for the end-Permian mass extinction and the protracted Early Triassic aftermath/recovery. *GSA Today* 18: 4-10.
- Isbell, J.L., Fraiser, M.L., and \*Henry, L.C. 2008. Examining the complexity of environmental change during the late Paleozoic and early Mesozoic. *Palaios* 23: 267-269.
- Fraiser, M.L., and Bottjer, D.J. 2007. When bivalves took over the world. *Paleobiology* 33: 397-413.
- Fraiser, M.L., and Bottjer, D.J. 2007. Elevated atmospheric CO<sub>2</sub> and the delayed biotic recovery from the end-Permian mass extinction. *Palaeogeography, Palaeoclimatology, Palaeoecology* 252: 164-175.
- Clapham, M.E., Bottjer, D.J., Jamet, C.M., Bonuso, N., Fraiser, M.L., Marengo, P.J., Dornbos, S.Q., and Pruss, S.B. 2006. Phanerozoic trends in ecological dominance. *Palaios* 21: 431-441.
- Fraiser, M.L., and Bottjer, D.J. 2005. Restructuring of benthic level-bottom shallow marine communities due to prolonged environmental stress during the aftermath of the end-Permian mass extinction. *Comptes Rendus PALEVOL* 4: 515-523.
- Fraiser, M.L., Twitchett, R.J., and Bottjer, D.J., 2005, Unique microgastropod biofacies in the Early Triassic: Indicator of long-term biotic stress and the pattern of biotic recovery after the end-Permian mass extinction: *Comptes Rendus PALEVOL*, v. 4, p. 475-484.
- Fraiser, M.L., and Bottjer, D.J. 2004. The non-actualistic Early Triassic gastropod fauna: A case study of the Lower Triassic Sinbad Limestone Member. *PALAIOS* 19: 259-275.
- Pruss, S.B., Fraiser, M.L., and Bottjer, D.J. 2004. The proliferation of Early Triassic wrinkle structures: Implications for environmental stress following the end-Permian mass extinction. *Geology* 32: 461-464.
- Fraiser, M.L., and Corsetti, F. A. 2003. Neoproterozoic carbonate shrubs: interplay of microbial activity and unique environmental conditions during post-Snowball Earth oceans. *PALAIOS* 18: 378-387.

## Book Chapters

- Dornbos, S.Q., Clapham, M.E., Fraiser, M.L., and Laflamme, M. 2012. Chapter 5: Lessons from the fossil record: Ediacaran radiation, the Cambrian radiation, and the end-Permian mass extinction: in Paterson, D.M., Aspden, R.J.A., Solan, M., eds., *Marine Biodiversity Futures and Ecosystem Functioning: Frameworks, methodologies and integration*, Oxford University Press, 52-72.
- Fraiser, M.L., Clapham, M.E., and Bottjer, D.J. 2010. Mass extinctions and changing taphonomic processes: Fidelity of the Guadalupian, Lopingian, and Early Triassic fossil records: in Bottjer, D.J., and Allison, P. A., eds., *Taphonomy: Process and Bias Through Time*, Plenum Press, p. 569-590.
- Fraiser, M.L., and Bottjer, D.J. 2005. Fossil preservation during the aftermath of the end-Permian mass extinction: Taphonomic processes and palaeoecological signals: in Morrow, J., Over, D.J., Wignall, P.B., eds., *Understanding Late Devonian and Permian-Triassic Biotic and Climatic Events: Towards an Integrated Approach, Developments in Paleontology and Stratigraphy Volume 20*, p. 299-311.

## Encyclopedia Entries

- Fraiser, M.L. 2006. Surviving the Permian-Triassic biotic crisis. *2006 Yearbook of Science and Technology*, McGraw-Hill Encyclopedia of Science and Technology, McGraw-Hill, New York, p. 225-226.

## Manuscripts in Submission

\* denotes student co-author

- \*Huang, Y., Fraiser, M.L., Tong, J., and Wu, S. in revision. The rise and fall of the Early Triassic crisis progenitor *Claraia* (Bivalvia). *PALAIOS*.
- Marenco, P.J., Fraiser, M.L., \*Gatz-Miller, H., and Clapham, M.E. in revision. Microgastropod evidence for anomalous Early Triassic marine conditions. *Palaeogeography, Palaeoclimatology, Palaeoecology*.

## Manuscripts in Preparation

\* denotes student co-author

- \*Braun, N.L., Fraiser, M.L., Isbell, J.L., Pagani, A., Taboada, A., and Gulbranson, E., in preparation. Paleocology of Carboniferous Glacial and Nonglacial Faunas of Patagonia. *Gondwana Research*, submission anticipated October 1, 2015.
- \*Rolle, J.J., and Fraiser, M.L., in preparation. Paleocological Recovery Of Early Triassic Echinoids: A Test Of The Habitable Zone Hypothesis With Members Of The Modern Fauna. *PALAIOS*, submission anticipated October 1, 2015.
- \*Pauls, K.P., Fraiser, M.L., Isbell, J.L., Pagani, A., and Taboada, A., in preparation. Sedimentology and Paleocology of the Pampa de Tepuel Formation, Argentina. *Gondwana Research*, submission anticipated December 1, 2015.

## Other Publications

- Fraiser, M.L. 2014. Nobody Lobbies For Geosciences Like Geoscientists. *AGU Blogosphere*. American Geophysical Union. The Bridge: Connecting Science and Policy. 14 October.
- Algeo, T., Fraiser, M.L., Wignall, P.B., and Winguth, A.M.E. 2013. Permian–Triassic paleoceanography. *Global and Planetary Change* 105: 1-6.
- Fraiser, M.L., Twitchett, R.J., \*Frederickson, J.A., \*Metcalf, B., and Bottjer, D.J. 2011. Gastropod evidence against the Early Triassic Lilliput Effect: Comment. *Geology* 39: 232.
- Fraiser, M.L. 2009. Understanding ancient, modern and future biotic responses to environmental change. *Global and Planetary Change* 65: 105-106.
- Fraiser, M.L., and Corsetti, F. A. 2002. Neoproterozoic carbonate shrubs: a new cap carbonate facies, in Corsetti, F.A., ed., *Proterozoic-Cambrian of southwestern North America. SEPM Pacific Section Guidebook and Volume 93*: 21-30.

## AWARDS AND HONORS

- 2015 Education and Outreach Coordinator, Paleontological Society.
- 2013 Membership Coordinator (Early Career Councilor-at-Large), Paleontological Society.
- 2013 University of Wisconsin Libraries Research Fellow, University of Wisconsin-Milwaukee.
- 2012 University of Wisconsin Libraries Research Fellow, University of Wisconsin-Milwaukee.
- 2011 Graduate School Research Award, University of Wisconsin-Milwaukee.
- 2011 University of Wisconsin Libraries Research Fellow, University of Wisconsin-Milwaukee.
- 2010 Alumni Association Award for Teaching Excellence, University of Wisconsin-Milwaukee.
- 2010 Distinguished Undergraduate Teaching Finalist, University of Wisconsin-Milwaukee.
- 2010 University of Wisconsin Libraries Research Fellow, University of Wisconsin-Milwaukee.
- 2009 Graduate School Research Fellow, University of Wisconsin-Milwaukee.
- 2001 Award for Excellence in Teaching, University of Southern California.
- 1998 Undergraduate Student of the Year, Department of Geology, University of Georgia.
- 1998 Phi Beta Kappa, University of Georgia.
- 1998 Joy Williams Women in Science Award, University of Georgia.

## GRANTS AND FELLOWSHIPS

- 2015 National Science Foundation, International Research Experience for Students. Late Paleozoic Ecosystems. PI. Erik Gulbranson, John Isbell, UW-Milwaukee, co-PIs. Pending. 02/01/16-01/31/19.
- 2015 Office of Undergraduate Research Stipend for Undergraduate Research Fellows, University of Wisconsin-Milwaukee. Analysis of fossilized wrinkle structures utilizing photogrammetry methods. PI. James VanEerden, undergraduate researcher. \$5,500, Summer 2015.
- 2015 Office of Undergraduate Research Stipend for Undergraduate Research Fellows, University of Wisconsin-Milwaukee. Developing a New Proxy for Ancient Seawater pH.

- PI. Erin Bulson, undergraduate researcher; Erik Gulbranson, co-PI. \$5,289, Summer and Fall 2015.
- 2015 Office of Undergraduate Research Stipend for Undergraduate Research Fellows, University of Wisconsin-Milwaukee. Developing a New Proxy for Ancient Seawater pH. Co-PI. Kate Gigstad, undergraduate researcher; Erik Gulbranson, PI. \$5,289, Summer and Fall 2015.
- 2013 Faculty Research and Creative Activities Support, University of Wisconsin-Milwaukee. What are the Controls on Ecosystem Recovery Following Global Environmental Change? A geochemical and paleoecological case study following the end-Permian mass extinction. PI. \$14,962, 2013-2015.
- 2013 Faculty Travel Award, University of Wisconsin-Milwaukee Center for Latin American and Caribbean Studies. Biotic and Sedimentologic Effects of Widespread Glaciation during the Late Paleozoic Ice Age Recorded in Patagonia, Argentina. \$500.
- 2012 Office of Undergraduate Research Stipend for Undergraduate Research Fellows, University of Wisconsin-Milwaukee. How did Marine Organisms Survive Earth's Largest Mass Extinction? PI. Jenna Rolle, undergraduate researcher. \$3,000, Spring 2012.
- 2012 Office of Undergraduate Research Stipend for Undergraduate Research Fellows, University of Wisconsin-Milwaukee. Morphometrics of the Post-Extinction Bivalve *Claraia*. PI. Ethan Guyant, undergraduate researcher. \$1,500, Spring 2012.
- 2011 National Science Foundation, International Research Experience for Students. Collaborative IRES: Integrated Research & Educational Training of Geoscience Students in Deep-Time Paleoclimatology, Western South America. Co-PI. John Isbell, UW-Milwaukee, PI. \$16,985, 08/14/11-08/13/12.
- 2011 Office of Undergraduate Research Stipend for Undergraduate Research Fellows, University of Wisconsin-Milwaukee. Morphometrics of the Post-Extinction Bivalve *Claraia*. PI; Ethan Guyant, undergraduate researcher. \$1,500, Fall 2011.
- 2011 Visits to Sponsors Travel Awards, University of Wisconsin-Milwaukee Graduate School. To meet with collaborators at the annual meeting of the Geological Society of America in Minneapolis, MN. \$500, Fall 2011.
- 2011 Faculty Travel Award Grant, University of Wisconsin-Milwaukee Center for International Education. For travel to Perth, Australia to present at the XVII International Congress on the Carboniferous and Permian, \$500.00, June 2011.
- 2011 Office of Undergraduate Research Stipend for Undergraduate Research Fellows, University of Wisconsin-Milwaukee. Morphometrics of the Post-Extinction Bivalve *Claraia*. PI. Ethan Guyant, undergraduate researcher. \$1,500, Summer 2011.
- 2011 Office of Undergraduate Research Stipend for Undergraduate Research Fellows, University of Wisconsin-Milwaukee. Morphometrics of the Post-Extinction Bivalve *Claraia*. PI; Ethan Guyant, undergraduate researcher. \$1,500, Spring 2011.
- 2010 Research Growth Initiative, University of Wisconsin-Milwaukee. Testing the End-Permian Mass Extinction Recovery Paradigm. PI. \$67,663, 08/31/2010-08/30/11.
- 2009 National Science Foundation, Sedimentary Geology and Paleobiology. ARRA Collaborative Research: New Chemo- and Biostratigraphic Framework for the Lower Triassic of the Western U.S.: Towards a high-resolution understanding of Early Triassic

- events. Co-PI; Pedro J. Marenco, Bryn Mawr College, PI; Matthew E. Clapham, UC, Santa Cruz, co-PI. \$69,240.00, 08/01/09-07/31/11.
- 2009 Office of Undergraduate Research Stipend for Undergraduate Research Fellows, University of Wisconsin-Milwaukee. Paleocology of Brachiopods During the Aftermath of the end-Permian Mass Extinction. PI. Scott Schaefer, undergraduate researcher. \$1,500.00, Spring and Summer 2009.
- 2008 National Science Foundation, International Research Experience for Students. Collaborative IRES: Integrated Research & Educational Training of Geoscience Students in Deep-Time Paleoclimatology, Western South America. Co-PI. Isabel P. Montañez, UC, Davis, PI; John Isbell, UW-Milwaukee, co-PI. \$75,000, 08/15/08-08/14/11.
- 2009 Faculty Travel Award Competition, University of Wisconsin-Milwaukee Center for Latin American and Caribbean Studies. Biotic and Sedimentologic Effects of Widespread Glaciation during the Late Paleozoic Ice Age Recorded in Patagonia, Argentina. \$500, March 2009.
- 2008 Faculty Travel Award Competition, University of Wisconsin-Milwaukee Center for Latin American and Caribbean Studies. Understanding the Late Paleozoic Paleoclimate Record of Western Argentina and its Implications for Future Climate Change. \$500, August 2008.
- 2007 National Science Foundation, Antarctic Research, Earth Sciences. Collaborative Study: Re-evaluation of the Late Paleozoic Gondwanan Ice Age in Northern Victoria Land (Antarctica) and Tasmania (Australia). Co-PI. John Isbell, UW-Milwaukee, PI; Chris Fielding, Tracy Frank, UN-Lincoln, co-PIs. \$17,980, 06/01/07-05/31/10.

## INVITED TALKS

- 2014 Academic Adventurers, American Geographical Society Library, UW-Milwaukee.
- 2013 Recovery Vs. Restructuring: Establishing Ecologic Patterns In Early And Middle Triassic Paleocommunities, American Geophysical Union annual meeting, San Francisco, CA.
- 2013 How Did Life Rebound After Earth's largest Extinction? Milwaukee Public Museum.
- 2012 Examining the complexity of environmental change during the late Paleozoic and early Mesozoic, University of Illinois-Chicago.
- 2011 Examining the complexity of environmental change during the late Paleozoic and early Mesozoic, Bryn Mawr College.
- 2009 Elevated Atmospheric CO<sub>2</sub> and the Prolonged Permian-Triassic Biotic Crisis, Wisconsin Geological Society.
- 2008 Elevated Atmospheric CO<sub>2</sub> and the Prolonged Permian-Triassic Biotic Crisis, University of Wisconsin-Oshkosh.
- 2008 Elevated Atmospheric CO<sub>2</sub> and the Prolonged Permian-Triassic Biotic Crisis, University of Illinois-Chicago.
- 2007 Elevated Atmospheric CO<sub>2</sub> and the Prolonged Permian-Triassic Biotic Crisis, Great Lakes WATER Institute.
- 2005 Acid Seas and the Prolonged Permian-Triassic Biotic Crisis, Department of Geosciences, University of Wisconsin-Milwaukee.

- 2005 Acid Seas and the Prolonged Permian-Triassic Biotic Crisis, Department of Earth and Space Sciences, University of Washington.
- 2005 Microbial Signatures in the Rock Record, Department of Earth and Space Sciences, University of Washington.
- 2004 Ecological effects of the end-Permian mass extinction and the Early Triassic aftermath: When bivalves took over the world. Department of Integrative Biology, University of California, Berkeley.
- 2002 Paleoecology of Early Triassic Gastropoda and Bivalvia: Understanding molluscan success during the biotic recovery from the end-Permian mass extinction. Annual meeting of the Western Society of Malacologists, Pebble Beach, California.
- 1998 Opportunists during the biotic recovery from the end-Permian mass extinction. Department of Earth & Planetary Science, University of Tokyo.

## **CONFERENCE ACTIVITY/PARTICIPATION**

### **Panels Organized and Chaired**

- 2015 Early and Middle Triassic Re-Structuring following the end-Permian mass extinction, Annual meeting of the Geological Society of America. Sponsored by the Paleontological Society. November 1-4, 2015, Baltimore, Maryland USA.
- 2010 New developments in Permian-Triassic paleoceanography, Annual meeting of the Geological Society of America. Sponsored by the GSA Sedimentology Division and the Society for Sedimentary Geology. October 31-November 3, 2010, Denver, Colorado USA.
- 2009 Biotic Recovery of Ecosystems Following the End-Permian Mass Extinction, North American Paleontological Congress. June 21-26, 2009, Cincinnati, Ohio USA.
- 2006 Biotic Response to Global Environmental Change: Analogs for the Future of Life on Earth, Annual meeting of the Geological Society of America. Sponsored by the Paleontological Society. October 22-25, 2006, Philadelphia, Pennsylvania USA.

### **Panels Chaired and Co-Chaired**

- 2011 IGCP572 session: Ecosystem rebuilding from the Permian-Triassic mass extinction, XVII International Congress on the Carboniferous and Permian. July 3-8, 2011, Perth, Australia.
- 2005 Life's Responses to Climate Change, Annual meeting of the Geological Society of America, October 16-19, 2005, Salt Lake City, Utah USA.
- 2002 Early Life, Annual meeting of the Geological Society of America. October 27-30, 2002, Denver, Colorado USA.

### **Papers Presented**

\* denotes student co-author/presenter



- 2015 Geochemical Evidence Does Not Support Prolonged Marine Environmental Stress In Earliest Griesbachian Marine Environments Of Mid-Latitudinal Eastern Panthalassa. Geological Society Of America Annual Meeting. November.
- 2015 \*Towards Applications Of B-Isotope Geochemistry For Paleo-Ocean Chemistry Reconstruction. Geological Society Of America Annual Meeting. November.
- 2014 \*Early Triassic Echinoids Of The Western United States: Their Implications For Paleoecology And The Habitable Zone Hypothesis Following The Permo-Triassic Mass Extinction. Geological Society Of America Annual Meeting.
- 2014 Ecologic Restructuring After The Permo-Triassic Mass Extinction Linked To Varying Redox Conditions: A Geochemical And Paleoecological Case Study Of The Upper Lower To Middle Triassic Of The Western United States. Geological Society Of America Annual Meeting.
- 2014 \*Functional Diversity Of The Middle Triassic Qingyan Formation, South China: Quantifying Ecological Richness And Evenness In Marine Paleocommunities After The Permo-Triassic Mass Extinction. Geological Society Of America Annual Meeting.
- 2014 \*Paleoecology Of Glacial And Non Glacial Carboniferous Faunas During The Late Paleozoic Ice Age In Patagonia. Geological Society Of America Annual Meeting.
- 2013 \*Recovery vs. Restructuring: Establishing Ecologic Patterns In Early And Middle Triassic Paleocommunities. AGU Fall meeting, San Francisco, California USA.
- 2013 \*Carboniferous And Permian Glacigenic And Non-Glacial Strata Of The Tepuel-Genoa Basin, Patagonia, Argentina: A Near-Continuous, Deep-Water Record Of South Polar Gondwana During The Late Paleozoic Ice Age. Geological Society Of America Annual Meeting.
- 2013 Extreme Microgastropod Size-Limitation In Early Triassic Shallow Marine Settings, Hidden Pasture, Montana: Implications For Environmental Conditions Following The End Permian Mass Extinction. Geological Society Of America Annual Meeting.
- 2013 \*Sedimentology And Paleoecology Of Late Paleozoic High-Latitude, Glaciogenic Deposits In The Tepuel Basin, Patagonia, Argentina. Geological Society Of America Annual Meeting.
- 2013 \*Recovery Vs. Restructuring: Establishing Ecologic Patterns In Early And Middle Triassic Paleocommunities. Geological Society Of America Annual Meeting.
- 2013 \*Microbially Induced Sedimentary Structures As An Ecological Niche For Metazoan Colonization During The Early Triassic Geological Society Of America Annual Meeting.
- 2013 \*Paleoecological Recovery Of Early Triassic Echinoids: A Test Of The Habitable Zone Hypothesis With Members Of The Modern Fauna, Geological Society Of America Annual Meeting.
- 2013 Microbially induced sedimentary structures as an ecological niche for metazoan colonization in the Early Triassic. World Summit on P-Tr Mass Extinction & Extreme Climate Change. June 13-15, 2015, Wuhan, China.
- 2013 \*Paleoecological recovery of Early Triassic echinoids: A test of the habitable zone hypothesis with members of the Modern Fauna. World Summit on P-Tr Mass Extinction & Extreme Climate Change. June 13-15, 2015, Wuhan, China.
- 2013 \*Microgastropods as evidence for anomalous shallow marine conditions in western

- North America during the Early Triassic. World Summit on P-Tr Mass Extinction & Extreme Climate Change. June 13-15, 2015, Wuhan, China.
- 2013 \*Carboniferous And Permian Strata Of The Tepuel-Genoa Basin, Patagonia, Argentina: A Near-Continuous, Deep-Water Record Of Polar Gondwana During The Late Paleozoic Ice Age. The Carboniferous-Permian Transition, New Mexico Museum Of Natural History & Science, Bulletin 60.
- 2012 \*The *Lanipustula* Biozone In Patagonia: Stratigraphic Extension, Faunal Changes, Paleoclimatology And Paleoecology, Asociación Paleontológica Argentina, Annual Meeting (General Roca, November 2012), Ameghinana Vol. 49 Nº 4 Sup.
- 2012 \*Paleoecology And Sedimentology Of Fossil-Bearing, High-Latitude Glaciogenic Deposits In The Tepuel Basin, Patagonia, Argentina, Geological Society Of America Annual Meeting.
- 2012 \*A Diagenetic Investigation Of Lower Triassic Carbonates: Implications For Geochemical Studies Of The Early Triassic Biotic Recovery In The Western Us, Geological Society Of America Annual Meeting.
- 2012 \*Establishing A “New Normal” In The Early And Middle Triassic: Novel Views On Marine Community Recovery After The End-Permian Mass Extinction, Geological Society Of America Annual Meeting.
- 2012 Early Triassic trace fossil assemblage shows recovery from end-Permian mass extinction varied in time and space. IGCP572 Closing Conference: Permian-Triassic Ecosystems: collapse and rebuilding, June 1-3, Eger, Hungary.
- 2011 Temporal and environmental distribution of mixed fauna survivors after the end-Permian mass extinction, Geological Society of America Annual Meeting.
- 2011 \*When and where did life recover from the end-Permian mass extinction? Geological Society of America Annual Meeting.
- 2011 When did marine ecosystems recover following the end-Permian mass extinction? *in* Programme & Abstracts: The XVII International Congress on the Carboniferous and Permian, Håkansson, E., and Trotter, J.A., eds., Record 2011/20, Geological Survey of Western Australia, Perth, p. 59.
- 2011 \*Geochemical, petrographic and spatial analyses of microbialites from the Virgin Limestone, Nevada: Insights into Early Triassic biotic recovery from the end-Permian mass extinction, Geological Society of America Annual Meeting.
- 2011 \*Glacial sedimentology and micromorphology of the Wynyard Formation , Tasmania, Australia: Implications for climate at the peak of the late Paleozoic Ice Age, Geological Society of America Annual Meeting.
- 2011 \*The equilibrium line altitude as a control on Gondwana glaciation during the late Paleozoic Ice Age, *in* Programme & Abstracts: The XVII International Congress on the Carboniferous and Permian, Håkansson, E., and Trotter, J.A., eds., Record 2011/20, Geological Survey of Western Australia, Perth, p. 74.
- 2011 \*Emerging polar view of the late Paleozoic ice age as interpreted from deep-water, distal, glacial marine deposits in the Tepuel-Genoa Basin, Patagonia, Argentina, *in* Programme & Abstracts: The XVII International Congress on the Carboniferous and Permian, Håkansson, E., and Trotter, J.A., eds., Record 2011/20, Geological Survey of Western Australia, Perth, p. 74.

- 2011 \*Conodont biostratigraphy of the Virgin Limestone at Lost Cabin Spring: implications for the study of Early Triassic biotic events, Geological Society of America Annual Meeting.
- 2011 \*Habitable zone distribution of Early Triassic rhynchonelliform brachiopods in the Dinwoody basin of the western United States. Geological Society of America Annual Meeting.
- 2010 \*Regional Paleocology of Near-Field Marine Faunas during the late Paleozoic Ice Age, western Argentina. Geological Society of America Annual Meeting.
- 2010 Diverse Early Triassic trace fossil assemblage shows recovery from end-Permian mass extinction varied in time and space, Geological Society of America Annual Meeting.
- 2010 \*Stromatolite-sponge-*Tubiphites* reefs in the Virgin Limestone Member of the Moenkopi Formation, Nevada: Implications for biotic recovery following the end-Permian mass extinction. Geological Society of America Annual Meeting.
- 2010 \*Refining the timing of Early Triassic biotic and environmental events: Results from the Moenkopi Formation of Nevada, Geological Society of America Annual Meetings.
- 2010 Marine biodiversity and ecosystem functioning during two critical intervals of animal evolution: The Ediacaran-Cambrian radiation and the end-Permian mass extinction and its aftermath, Geological Society of America Annual Meeting.
- 2010 \*The relationship between equilibrium line altitude and latitude as a control on Gondwana Glaciation during the late Paleozoic Ice Age, International Conference on Sedimentology, Mendoza, Argentina, September 26-October 1, 2010.
- 2009 Paleocology of Early Triassic skeletobionts, 9<sup>th</sup> North American Paleontological Convention, University of Cincinnati, Cincinnati, Ohio, June 21-26, Cincinnati Museum Center Scientific Contributions Number 3, 401.
- 2009 \*Early Permian glacial advance-retreat cycles recorded in the Wynyard Formation of Tasmania, Australia: Geological Society of America North-Central Meeting, Abstracts with Programs, v. 41, p. 72.
- 2009 \*Potential environmental consequences of Panthalassan margin volcanism in the Late Paleozoic. Geological Society of America Annual Meeting.
- 2009 \*The Late Paleozoic Ice Age: Revision of the western Gondwana record: Geological Society of America North-Central Meeting, Abstracts with Programs 41: 72.
- 2009 Comparison of the relative ecologic impact of the end Ordovician extinction and other mass extinctions, Absolutely final meeting of IGCP 503: Ordovician palaeogeography and palaeoclimate Copenhagen 2009, Abstracts, Harper, D.A.T., and McCorry, M., eds., August 31-September 4, 2009.
- 2009 Comparison of ecologic recovery from the end Ordovician extinction with other mass extinctions, 9<sup>th</sup> North American Paleontological Convention, University of Cincinnati, Cincinnati, Ohio, June 21-26, Cincinnati Museum Center Scientific Contributions Number 3, p. 180.
- 2008 \*Examining the complexity of environmental and biotic change during the late Paleozoic and early Mesozoic. Geological Society of America Annual Meeting.
- 2008 \*Deglaciation in a Pennsylvanian paleovalley of western Argentina: The Agua de Jagüel Formation. Geological Society of America Annual Meeting.

- 2007 Early Triassic fossil collections reflect true paleoecological patterns following the end-Permian mass extinction: Geological Society of America Annual Meeting.
- 2006 Permian-Triassic CO<sub>2</sub>: Acid seas and the prolonged physiological and biocalcification crisis in shallow marine environments: *in* Yang, Q., Wang, Y., and Weldon, E., eds., *Ancient Life and Modern Approaches: Abstracts of the Second International Palaeontological Congress, Beijing, The People's Republic of China, June 17-22, 2006*, p. 404.
- 2006 A new role for elevated CO<sub>2</sub> in the prolonged Permian-Triassic biotic crisis: Geological Society of America Annual Meeting.
- 2006 The role of elevated atmospheric CO<sub>2</sub> in prolonging biotic crisis in Early Triassic shallow marine environmental settings: *in* Nakrem, H.A. and Mørk, A., eds., *Boreal Triassic 2006: Abstracts and Proceedings of the Geological Society of Norway, IGCP 467 Boreal Triassic Conference at Longyearbyen, Svalbard, Arctic Norway, August 16-19, 2006*, p. 52-53.
- 2005 16 professional presentations during 1999-2005.

## TEACHING EXPERIENCE

### University of Wisconsin-Milwaukee

- A History of Life (Spring 2009)
- Advanced Independent Reading (Spring 2011, 2013, 2014)
- Biotic Crises in Earth's History: Seminar in the Geological Sciences (Spring 2008, 2015)
- Doctoral Dissertation (Fall 2010, 2011, 2012, 2013, 2014; Spring 2012, 2013, 2015; Summer 2013)
- Internship in Geosciences (Spring 2011)
- Introduction to Ocean Sciences (Fall 2005, 2006; Winter 2014, 2015; Spring 2006, 2008; Summer 2014, 2015)
- Master's Thesis (Fall 2009, 2011, 2013, 2014; Spring 2010, 2012, 2013, 2014, 2015; Summer 2010)
- Mid-Phanerozoic Climates, Environments, and Life: Conducted Field Trip (Spring 2012)
- Paleobiology and Sedimentology of the Bahamas: Conducted Field Trip (Spring 2009)
- Permian-Triassic Ecosystem Changes: Seminar in the Geological Sciences (Spring 2011)
- Phanerozoic Evolutionary Trends: Seminar in the Geological Sciences (Spring 2010, 2012)
- Principles of Historical Geology (every Fall 2006-2015; every Spring 2008-2015)

## RESEARCH SUPERVISION

### M.S. Theses and Ph.D. Dissertations Directed

- 2015 Ashley Dineen, Ph.D. Functional Diversity Of Regional Marine Paleocommunities After The Permo-Triassic Mass Extinction: Case Studies From Panthalassa And Paleo-Tethys.
- 2015 Nicole Braun, M.S. Paleoecology of Glacial and Non-Glacial Carboniferous Faunas During the Late Paleozoic Ice Age in Patagonia.

- 2015 Erin Wagner, M.S. Microbially-Induced Sedimentary Structures during the Early Triassic aftermath of the Permo-Triassic Mass Extinction.
- 2014 Jenna Rolle, M.S. Early Triassic Echinoids of the Western United States: Their Implications for Paleocology and the Habitable Zone Hypothesis Following the Permo-Triassic Mass Extinction.
- 2014 Kathryn Pauls, M.S. Regional paleoecology of ice-proximal faunas during the late Paleozoic Ice Age.
- 2013 Lindsey Henry, Ph.D. Late Paleozoic glaciation over western and eastern Gondwana.
- 2013 Yunfei Huang, Ph.D., Visiting student from China University of Geosciences, Bivalves Following the Permo-Triassic Mass Extinction.
- 2010 Scott Schaefer, M.S. Regional paleoecology of rhynchonelliform brachiopods during the aftermath of the end Permian mass extinction.
- 2010 Ashley Dineen, M.S., Regional paleoecology of near-field marine faunas during the late Paleozoic Ice Age, western Argentina.

### **M.S. Thesis and Ph.D. Dissertation Committees**

- 2015 Kathryn Pauls, Ph.D. To present.
- 2015 David Cordie, Ph.D. To present.
- 2015 Ryan Dunk, Ph.D. To present.
- 2013 Zelenda Koch, Ph.D.
- 2012 Tristan J. Kloss, Ph.D.
- 2008 Tristan J. Kloss, M.S.
- 2008 Mark T. Schlottke, M.S.
- 2007 Lindsey C. Henry, M.S.

### **Undergraduate Research Directed**

- 2015 Erin Bulson, B.S. Developing a New Proxy for Ancient Seawater pH. To present.
- 2015 Kate Gigstad, B.S. Developing a New Proxy for Ancient Seawater pH. To present.
- 2015 James VanEerden, B.S. Analysis of fossilized wrinkle structures utilizing photogrammetry methods. To present.
- 2014 Chen-Yi Tu, Visiting student from China University of Geosciences. Crinoids during the Late Permian to the Middle Triassic.
- 2013 Yan Xu, Visiting student from China University of Geosciences. Trace Fossil Evolution from the Late Permian to the Middle Triassic.
- 2012 Ethan Guyant, B.S. Morphometrics of the Post-Extinction Bivalve *Claraia*.
- 2011 Jenna Rolle, B.S. Biological Sciences. Paleocology of Early Triassic echinoids.
- 2011 Aaron Sanneman, B.S. Sedimentology and paleontology of the Tepuel Formation in Tepuel Basin, Argentina.
- 2010 Joseph Frederickson, B.S. Quantification of Early Triassic gastropod size.
- 2010 Scott Schaefer, B.A. History. Brachiopods: Survivors of Near Total Erasure of Life on Earth.

- 2010 Jenny Ulbricht, B.S. Sedimentology and paleontology of the Tepuel Formation in Tepuel Basin, Argentina.
- 2009 Stacie Albert, B.S. Sedimentology and paleontology in the Calingasta-Uspallata Basin, Argentina.
- 2009 Elizabeth Boecker, B.S. Fossil taphonomy and rock preference among gobi.
- 2009 Danielle Sieger, B.S. Sedimentology and paleontology in the Calingasta-Uspallata Basin, Argentina.

### **Other Advisement**

- 2009 Alejandra Alvaro, M.A. in Foreign Language, Literature, and Translation.
- 2007 Lori Voelker, Middle grades teacher, Milwaukee Public Schools. Paleoecology of the Ordovician Platteville Formation near Fennimore, Wisconsin. Sponsored by the National Science Foundation Research Experience for Teachers program.

## **RESEARCH EXPERIENCE**

### **Field Excursions Organized and Conducted**

- 2015 Western USA.
- 2013 Hunan Province, People's Republic of China; Dolomites region, Italy; western USA.
- 2012 Patagonia, Argentina; Western USA.
- 2011 Patagonia, Argentina.
- 2010 Guizhou Province, People's Republic of China; Patagonia, Argentina.
- 2009 Patagonia, Argentina; Guizhou Province, People's Republic of China.
- 2008 Tasmania, Australia; western Argentina.
- 2007 Sichuan Province, People's Republic of China.
- 2005 Anhui and Guizhou Provinces, People's Republic of China.
- 2003 Honshu and Kyushu Islands, Japan; Dolomites region, Italy.
- 2002 Western USA.
- 2001 Western USA, with colleagues from Japan and the United Kingdom.
- 2000 Western U.S.A., with colleague from Spain

### **Research Assistantships**

- 2002 Research Assistant, Los Angeles County Museum of Natural History.
- 2000 Research Assistant, Department of Earth Sciences, University of Southern California.
- 1998 Undergraduate Research Assistant, Department of Geology, University of Georgia.

## **SERVICE**

### **Professional**

- 2015 Elected Education and Outreach Coordinator, Paleontological Society.

- 2015 Workshop leader for On the Cutting Edge, Division of Undergraduate Education, National Science Foundation.
- 2014 Co-Leader of UNESCO International Geoscience Programme. IGCP 630: Permian-Triassic climatic and environmental extremes and biotic response. 2014-2018.
- 2014 Tenure dossier reviewer for a liberal arts college.
- 2013 Editorial Board of journal *Albertiana*. 2013-present.
- 2013 Editorial Board of *Journal of Paleogeography*, 2013-present.
- 2013 Elected Early Career Councilor-at-Large, Paleontological Society, 2013-2015.
- 2012 Associate Editor of the journal *PALAIOS*. 2012-present.
- 2011 Secretary for International Geological Correlation Programme 572.
- 2011 Deep Time Earth-Life Observatory Network (DETELON) Community Workshop.
- 2008 National Research Council workshop: The Importance of Deep-Time geologic Records for Understanding Climate Change Impacts, May 5-6, 2008, Irvine, California, USA.
- 2008 Co-Leader of UNESCO International Geoscience Programme. Restoration of marine ecosystems following the Permian-Triassic mass extinction: Lessons for the present. 2008-2012.
- 2005 Reviewing of Journal Articles and Grant Proposals. 2005-present, ~4 articles/year.

### **Departmental and University**

- 2015 UWM College of Letters & Science Natural Sciences Undergraduate Program Alignment Ad Hoc Committee.
- 2015 Center for Latin American and Caribbean Studies Advisory Committee. To present.
- 2015 Founder of the Paleoenvironment Group seminar series. To present.
- 2015 Undergraduate Faculty Adviser, Department of Geosciences. To present.
- 2015 Faculty Adviser for Geology Club. To present.
- 2013 Affiliated faculty member Center for Latin American and Caribbean Studies, 2013-present.
- 2012 Undergraduate Faculty Adviser, Department of Geosciences.
- 2012 Chairperson of the Events Committee, Department of Geosciences.
- 2012 Chairperson of ad hoc committee on Information Processing Consultant job description, Department of Geosciences.
- 2011 Ad hoc committee to determine appropriate use of online course funds, Department of Geosciences.
- 2010 Faculty Adviser for The Paleontology Club. To 2012.
- 2010 Faculty and staff awards committee, Department of Geosciences. To present.
- 2010 Graduate Student Research Award committee. To 2012.
- 2009 Ad hoc committee to determine guidelines for prospective graduate student visits, Department of Geosciences.
- 2009 Hiring Committee for Isotope Geochemistry faculty member, Department of Geosciences.
- 2008 Committee for updating website, Department of Geosciences. To present.

- 2008 Hiring Committee for Glacial/Quaternary Geology faculty member, Department of Geosciences.
- 2007 Organizer of brown bag discussion group. To 2008.
- 2006 Faculty adviser for undergraduate majors and minors. To 2010.

### **Community and Outreach**

- 2015 Science Bag, *Earth's CO<sub>2</sub> Crises: A Bad Case of Gas*. Every Friday night and one Sunday in November.
- 2015 Speaker for Earth Week Environmental Careers, 4<sup>th</sup> grade, Hawley Environmental School, Milwaukee, Wisconsin.
- 2014 Participant in Geosciences Congressional Visits Day (GEO-CVD).
- 2014 Panel member for Dinosaur Discovery Museum's Women in Science celebration, Kenosha, Wisconsin, USA.
- 2014 Earth Week Environmental Careers speaker, 4<sup>th</sup> Grade Class, Hawley Environmental School, Milwaukee, WI.
- 2013 Exam question writer and grader for the state finals for the Wisconsin Science Olympiad.
- 2007 Career Assembly on careers in Science, Technology, Engineering, and Math at Nathan Hale High School, West Allis, Wisconsin.

### **ADDITIONAL TRAINING**

- 2014 Accommodating Geoscience Workforce Diversity: Including the Talents of All Geoscientists, AGI Leadership Forum.
- 2014 Online and Blended Teaching Program, University of Wisconsin-Milwaukee.
- 2012 Excursions to Lower Triassic stratigraphic sections in Hungary, IGCP 572.
- 2006 Science Environment for Ecological Knowledge: Ecoinformatics Training for Ecologists, New Faculty and Postdoctoral Training, National Science Foundation. Albuquerque, New Mexico USA.
- 2006 Excursion to Triassic section at Festningen, Svalbard, Arctic Norway.
- 2005 Workshop on the late Paleozoic Gondwanan Ice Age, National Science Foundation.
- 2005 Excursion to Ediacaran Biota in Newfoundland, Canada.
- 2002 Marine Zoology, Friday Harbor Laboratories, University of Washington.
- 2001 Vertebrate Fossil Field Reconnaissance, Los Angeles County Museum of Natural History.
- 2000 Teaching Assistant, Department of Earth Sciences, University of Southern California
- 1995 Study abroad, Oxford University.

### **MEDIA COVERAGE**

- 2008 News of the Week: Most Devastating Mass Extinction Followed Long Bout of Sea Sickness, *Science* 322: 359.
- 2007 Top 25 Hottest Articles, October-December 2007, *Palaeogeography, Palaeoclimatology,*



- Palaeoecology, v. 252, p. 164-175.
- 2007 Deep sea killer may have triggered earth's greatest mass extinction. *National Geographic News*, November 19, 2007.
- 2007 Back from the Dead? *Science News*, November 17, 2007.
- 2007 Mass Extinctions: Out With a Whimper Not a Bang. *ScienceNOW*, November 7, 2007.
- 2007 When the Oceans Turned Toxic: Paleobiologist Studies how Elevated Carbon Dioxide Affected Ancient Marine Life. *UWM Today*, WUWM October 11, 2007.
- 2007 Mass Extinction. *Lake Effect*, WUWM, October 1, 2007.
- 2007 The Bivalves World. *Marine Animal News*, September 1, 2007.
- 2007 When Bivalves Ruled The World, *Today's Top Stories*, ScienceDaily.com, Aug. 31, 2007.
- 2007 When the Oceans Turned Toxic: Paleobiologist Studies how Elevated Carbon Dioxide Affected Ancient Marine Life, *UWM Featured Story*, August, 2007.

### **NONACADEMIC WORK**

- 2011 Consulting editor in invertebrate paleontology for the McGraw-Hill Yearbook of Science & Technology. 2011-present.
- 2007 Interviewed for development of Ocean Hall exhibit on end-Permian mass extinction, Smithsonian Institution National Museum of Natural History.

### **LANGUAGES**

English, native.

French, reading and writing good.

### **PROFESSIONAL AFFILIATIONS**

Association of Women Geologists (AWG).

American Association of University Women (AAUW).

American Geophysical Union (AGU).

Geological Society of America (GSA).

Paleontological Society (PS).

Sigma Gamma Epsilon, The National Honor Society of the Earth Sciences.

Sigma Xi, The Scientific Research Society.

Society for Sedimentary Geology (SEPM).