

BENJAMIN J. LINZMEIER
Department of Geoscience
University of Wisconsin – Madison
Madison, WI 53706
blinzmeier@wisc.edu
benlinzmeier.rocks | Google Scholar | ResearchGate

EMPLOYMENT

(October 2019 →)

University of Wisconsin - Madison
WiscSIMS laboratory post-doctoral fellow
advisors: S.E. Peters, N. Kita, and J.W. Valley

(2017 – 2019)

SIMS data collection and management
Northwestern University
Ubben post-doctoral fellow
advisors: B.B. Sageman, A.D. Jacobson, and M.T. Hurtgen
Ocean acidification in deep time

EDUCATION

(2009 – 2017)

Aug. 2017

University of Wisconsin–Madison
Ph.D., Department of Geosciences
advisors: S.E. Peters and J.W. Valley

May 2012

M.S., Department of Geosciences

(2005 – 2009)

Bowling Green State University
B.S., Geology, *magna cum laude*

RESEARCH METHODS/SKILLS

laboratory: Microprobe mount preparation, $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ measurement of carbonates using Cameca IMS-1280 ion microprobe, trace element measurement using Cameca electron microprobe, scanning electron microscopy using cathodoluminescence, backscattered electron, electron backscattered diffraction, and energy dispersive spectrometry. $\delta^{44/40}\text{Ca}$ measurement using Thermo Scientific Triton multi-collector thermal ionization mass spectrometer. White-light profilometer. Vertebrate and microfossil fossil preparation.

programming/computing: R; Inkscape; GIMP; QGIS; EPOS; Petra; Stratworks; ImageJ

PUBLICATIONS (*italics* denotes in-revision/in-press; # denotes student co-author)

2020

Linzmeier, B. J., Jacobson, A.D., Sageman, B.B., Hurtgen, M.T., Ankney, M.E., Petersen, S.V., Tobin, T.S., #Kitch, G.D., and #Wang, J. Calcium cycle instability before and during the end-Cretaceous extinction. *Geology*. <https://doi.org/10.1130/G46431.1>

Husson, J.M., **Linzmeier, B. J.**, Kitajima, K., Ishida, Akizumi, Peters, S.E., Maloof, A.C., Schoene, B., and Valley, J.W., Large isotopic variability at the micron-scale in 'Shuram' excursion carbonates from South Australia. In review at *Earth and Planetary Science Letters*.

Lovelace, D.M., #Hartman, S.H., #Mathewson, P., **Linzmeier, B. J.**, Krentz, D. and Porter, W., *Modeling Dragons: Using linked mechanistic physiological and microclimate models to explore environmental, physiological, and morphological constraints on the early evolution of dinosaurs*. In review at *PLoS One*. Preprint *BioRxiv*: <https://doi.org/10.1101/790980>

Hoffman, R., **Linzmeier, B. J.**, , Kitajima, K., Nehrke, G., Jöns, N. and Immenhauser, A. *Geochemical evidence for the composite nature of belemnite rostral calcite*. In review at *Geology*.

2019

Linzmeier, B. J., Refining the interpretation of oxygen isotope variability in free-swimming organisms. *The Swiss Journal of Paleontology*, vol. 138, p. 109-121.
PaleorXiv preprint: <https://doi.org/10.31233/osf.io/nbtgm>

2018

Linzmeier, B. J., Landman, N. H., Peters, S. E., Kozdon, R., Kitajima, K., and Valley, J. W., Ion microprobe stable isotope evidence for ammonite habitat and life mode during early ontogeny: *Paleobiology*, vol. 44, p. 684-708.

Linzmeier, B. J. Kitajima, K., #Denny, A.C., and Cammack, J. N., Making maps on a micrometer scale: *EOS*, 99.

2016

Linzmeier, B. J., Kozdon, R., Peters, S. E., and Valley, J. W., Oxygen isotope variability within *Nautilus* shell growth bands: *PLoS ONE* 11(4): e0153890

Hoffman, R., Richter, D.K., Neuser, R.D., Jons, N., **Linzmeier, B. J.**, Lemanis, R.E., Füsseis, F., Xaio, X., and Immenhauser, A., Evidence for a composite organic-inorganic fabric of belemnite rostra: Implications for palaeoceanography and palaeoecology. *Sedimentary Geology*, vol. 341, p. 203-215.

PAPERS IN PREPARATION (# denotes student co-author)

Linzmeier, B. J., Jacobson, A.D., Sageman, B.B., Hurtgen, M.T., Ankney, M.E. and Landman, N.H. Isotope systematics of subfossil, historical, and modern *Nautilus macromphalus* from New Caledonia. For submission to *Chemical Geology*.

Linzmeier, B. J., Tobin, T.S., Orland, I.J., Assing, D.A., Kitajima, K., Gopon, P., Huber, B.T., Peters, S.E., Ward, P.D., and Valley, J.W. High spatial resolution assessment for diagenesis and primary isotopic variability in Maastrichtian molluskan carbonates from Antarctica. In preparation for *Sedimentology*.

Linzmeier, B. J., Sessa, J.A., Orland, I.J., Landman, N.H., Peters, S.E., and Valley, J.W. Planktic early ontogeny in Late Cretaceous Owl Creek scaphitid ammonites. For submission to *PNAS*.

Linzmeier, B. J., Morphology of the Foraminifera genus *Ammonia* responds to salinity stress. For submission to *The Journal of Foraminiferal Research*.

2019

Linzmeier, B.J.*, Jacobson, A.D., Sageman, B.B., Hurtgen, M.T., Ankney, M.E. and Landman, N.H. Calibrating cephalopod isotope responses using *Nautilus macromphalus* from New Caledonia. National GSA conference, Phoenix, Arizona.

Linzmeier, B.J.* Of seasons and seashells: paleobiology and paleoclimatology from *in situ* and bulk geochemistry of mollusks, University of Florida, Department of Geology, Gainesville, Florida.

2018

Linzmeier, B.J.* Big picture, small spots: *in situ* geochemistry applied to paleobiology and paleoclimatology, University of Illinois, Chicago, Department of Geology, Chicago, Illinois.

Linzmeier, B.J. Refining the interpretation of oxygen isotope variability in cephalopods, National GSA conference, Indianapolis, Indiana.

Linzmeier, B.J.* Big picture, small spots: *in situ* geochemistry applied to paleobiology and paleoclimatology, University of Chicago, Department of Geophysical Sciences, Chicago, Illinois.

Linzmeier, B.J., Ward, P.D., Landman, N.H., Peters, S.E., Sessa, J.A., Orland, I.J., Kitajima, K., Kozdon, R., Tobin, T.S., and Valley, J.W., 2018, Preservation of daily depth migration behavior in $\delta^{18}O$ of cephalopods, 10th International Symposium, Cephalopods - Present and Past, Fes, Morocco.

Linzmeier, B.J.* Big picture, small spots: *in situ* geochemistry applied to paleobiology and paleoclimatology, Northwestern University, Earth and Planetary Science Seminar, Evanston, Illinois.

2017

Linzmeier, B.J., Landman, N.H., Sessa, J.A., Peters, S.E., Orland, I.J., Kitajima, K., Kozdon, R., and Valley, J.W., 2017 Using *in situ* geochemistry to investigate the depth habitat of ammonites, National GSA conference, Seattle, Washington.

Husson, J.M.*, **Linzmeier, B.J.**, Śliwiński, M.G., Kitajima, K., Valley, J.W., Peters, S.E., Schoene, B., and Maloof, A.C., 2017, From basin to crystal: Constraining the origin of Earth's largest carbon isotope excursion. Geobiology Society Conference, Banff, Canada.

Linzmeier, B.J., Sessa, J.A., Orland, I.J., Landman, N.H., Peters, S.E., and Valley, J.W., 2016, Stable isotope investigation of early ontogeny in Upper Cretaceous Owl Creek Formation ammonites, National GSA conference, Denver, Colorado.

Earlier

Linzmeier, B.J., Meyers, S.R., 2015, Undergraduates as communicators of local geological knowledge in a sedimentology and stratigraphy course, North Central GSA conference, Madison, Wisconsin.

#Henning, S., and **Linzmeier, B.J.**, 2014 Growth bands in Mollusks, Astrochronology workshop, Madison, Wisconsin.

Linzmeier, B.J., Landman, N.H., Kozdon, R., Peters, S.E., and Valley, J.W., 2014, Stable Isotope Evidence of Habitat Change During Early Ontogeny in Cretaceous *Hoploscapites*, 9th International Symposium, Cephalopods - Present and Past, Zurich, Switzerland.

SELECTED PROFESSIONAL POSTERS (# denotes student co-author)

2019

Linzmeier, B.J., Jacobson, A.D., Sageman, B.B., Hurtgen, M.T., Ankney, M.E., Petersen, S.V., and Tobin, T.S., Calcium Isotope Evidence for Environmental Change Before and Across the K-Pg Extinction, Goldschmidt Conference, Barcelona, Spain.

2018

Linzmeier, B.J., Jacobson, A.D., Sageman, B.B., Hurtgen, M.T., Ankney, M.E., and Landman, N.H., Using sub-fossil and historic *Nautilus* to test potential links between calcium isotope fractionation and pCO_2 , National GSA conference, Indianapolis, Indiana.

Linzmeier, B.J., Jacobson, A.D., Sageman, B.B., Hurtgen, M.T., Ankney, M.E., Petersen, S.V., and Tobin, T.S., Linking Deccan volcanism and the bolide impact with Ca isotope stratigraphy from the late of Maastrichtian Seymour Island, Antarctica, Goldschmidt Conference, Boston, Massachusetts.

Linzmeier, B.J., #Hong, S., and Zaffos, A., The geographic distribution of ammonite morphotypes, 10th International Symposium, Cephalopods - Present and Past, Fes, Morocco.

2016

#Assing, D.A., **Linzmeier, B.J.**, and Ward, P.D., Stable oxygen and carbon isotope profiles of high-latitude Late Cretaceous bivalves from Seymour Island, Antarctica, North Central GSA conference, Urbana-Champaign, Illinois.

Earlier

Linzmeier, B.J., Kozdon R., Peters, S.E., and Valley J.W., 2015, Variability of oxygen isotope ratios on the scale of tens of microns in *Nautilus* shell aragonite, High-Resolution Paleoclimate Proxies conference, Madison, Wisconsin.

Linzmeier, B.J., Landman, N.H., Kozdon, R., Peters, S.E., and Valley, J.W., 2013, Oxygen isotope evidence of habitat change during early ontogeny in Cretaceous *Hoploscapites*, National GSA conference, Denver, Colorado.

Linzmeier, B.J., Peters, S.E., Kozdon, R., Mapes, R.H., and Valley, J.W., 2010, Resolving depth migration in *Nautilus macromphalus* by ion microprobe analysis of $\delta^{18}O$, National GSA conference, Denver, Colorado.

Linzmeier, B.J., Wallace, S.W., Farver, J.R., and Yacobucci, M.M., 2009, Mapping diagenetic calcite vs. original aragonite in orthoconic nautiloids of the Buckhorn Asphalt (Middle Pennsylvanian) of Oklahoma, National GSA conference, Denver, Colorado.

RESEARCH GRANTS (Total: \$9,235)

2018 The Paleontological Society: *Norman Newell Early Career Grant*

2013 GSA: *Western Interior Seaway Thermohaline Stratification by Ion Microprobe of Ammonites*

2010 SIGMA XI: *Seasonality of Epicontinental Seas recorded in epithelial banding of Paleozoic Rugose Coral*

2009 BGSU: *Taphonomic and Ontogenetic Study of Orthocone Nautiloids of the Pennsylvanian Buckhorn Asphalt of Oklahoma Using Temporal Resolved Data Collected via LA-ICP-OES*

2009 BGSU: *The Forgotten Mastodon: Preservation and Description of a Historic Proboscidean Discovery from 1884, Wood County, Ohio*

RESEARCH MENTORSHIP

Carlyn Chrabszcz (BS at Brown University, *expected graduation 2021*)

Caroline Schuette (BS at Northwestern, *graduated June 2018*)

Sungyoon Hong (BS at UW-Madison, *graduated May 2016*)

Daniella Assing (BS at UW-Madison, *graduated May 2016*)

Steven Henning (BS at UW-Madison, *graduated May 2015*)

TEACHING EXPERIENCE

- Workshops and short courses:

QGIS for microanalysis workshop at DMG-MSA Diffusion studies short course, Bochum, Germany 2018

QGIS for microanalysis workshop at HiRes Paleoclimate proxies UW-Madison 2017

- University of Wisconsin–Madison (*as teaching assistant*):

QGIS for microanalysis workshop at HiRes Paleoclimate proxies UW-Madison 2017

Head Teaching Assistant 3 Semesters

Invertebrate Paleontology 1 Semester with Prof. Geary

Sedimentology and Stratigraphy 2 Semesters with Profs. Meyers and Peters

Geological Evolution of the Earth 4 Semesters with Profs. Kelly, Tikoff, and Goodwin

Evolution and Extinction 3 Semesters with Profs. Peters and Byers

- Bowling Green State University (*as co-instructor*):

GeoJourney: 9 week long field based introductory geology with N. Elkins

University of Wisconsin–Madison

2017 George J. Verville Award

Dissertation Completion Fellowship

2016 O. B. Shelburne Research Assistantship

College of Letters and Sciences Teaching Fellow

2015 University Housing Honored Instructor

2014 Thomas E. Berg Excellence in Teaching, Dept. of Geoscience

2010 NSF Graduate Research Fellowship Program - Honorable Mention

2009 Weeks Research Assistantship

- Bowling Green State University:

2008 **Barry M. Goldwater Memorial Scholarship**

2008 **Dennis L. Roder Geological Field Experience Scholarship**

2008 **Mancuso Field Studies Scholarship**

2008 **M.S. Lougheed Scholarship**

2006 **David Jacques Memorial Scholarship**

2006 **Toledo Gem and Rockhound Club Scholarship**

2005–2009 **University Professors Scholarship**

INTERNSHIPS

Chevron Corporation

2015 *Deep-water oil geology: Covington, Louisiana*

2014 *Unconventional oil geology: Midland, Texas*

Academic Internships

2007 *National Museum of Natural History: Washington D.C.*

2006 *The Mammoth Site: Hot Springs, South Dakota*

SERVICE AND OUTREACH

Northwestern University

2019 *Earth and Learn Symposium - Whitney M. Young Magnet High School, Chicago*

2019 *Geoscience Honors Thesis reviewer*

2019 *NAPC session chair*

2018 *Climate change teaching workshop*

2018 *Geoscience Honors Thesis reviewer*

2017 *National GSA conference session chair*

University of Wisconsin - Madison

2020 *Microscopy Microanalysis session chair*

2014 *Reviewer: Ammonoid paleobiology*

2011-2013 *Instructor: Pre-college Enrichment Opportunity for Learning Excellence*

2010-2017 *Elected positions: Geoscience Graduate Student Association*

2014-2015 *Secretary: American Association of Petroleum Geologists*

PROFESSIONAL ORGANIZATIONS

Geological Society of America
Paleontological Society

National Association of Geoscience Teachers
American Association of Petroleum Geologists