

BENJAMIN J. LINZMEIER
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EMPLOYMENT

(September 2017 →) **post-doctoral fellow at Northwestern University**
advisors: B.B. Sageman, A.D. Jacobson, and M.T. Hurtgen
Ocean acidification in deep time

EDUCATION

(2009 – 2017) **University of Wisconsin–Madison**
Aug. 2017 **Ph.D.**, Department of Geosciences
advisors: S.E. Peters and J.W. Valley
Thesis: Cephalopod ecology inferred from high-resolution ion microprobe analyses of stable isotopes
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 preparation.

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

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

- **Linzmeier, B. J.**, Landman, N. H., Peters, S. E., Kozdon, R., Kitajima, K., and Valley, J. W., 2018, Ion microprobe stable isotope evidence for ammonite habitat and life mode during early ontogeny: *Paleobiology*, p. 1-25.
- **Linzmeier, B. J.** Kitajima, K., Denny, A.C.#, and Cammack, J. N., 2018, Making maps on a micrometer scale: *EOS*, 99.
- **Linzmeier, B. J.**, *Refining the interpretation of oxygen isotope variability in free-swimming organisms. Submitted to The Swiss Journal of Paleontology.*
Preprint: <https://doi.org/10.31233/osf.io/nbtgm>

- Hoffman, R., **Linzmeier, B. J.**, Kitajima, K., Jons, N., and Immenhauser, A. Geochemical evidence for the composite nature of belemnite rostral calcite. *Revisions at Nature Communications*.
- Lovelace, D.M., #Hartman, S.H., #Mathewson, P., **Linzmeier, B. J.**, Krentz, D. and Porter, W., 2018, Using ecological modeling to quantify thermal constraints on two Late Triassic dinosaurs. *Revisions at PLoS One*.
- Husson, J.M., **Linzmeier, B. J.**, Śliwiński, M.G., Kitajima, K., Ishida, Akizumi, Peters, S.E., Maloof, A.C., Schoene, B., and Valley, J.W., 2019, Large isotopic variability at the micron-scale in 'Shuram' excursion carbonates from South Australia. *Submitted to Earth and Planetary Science Letters*.
- **Linzmeier, B. J.**, Kozdon, R., Peters, S. E., and Valley, J. W., 2016, 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., Fusseis, F., Xaio, X., and Immenhauser, A., 2016, 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.**, 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.**, Jacobson, A.D., Sageman, B.B., Hurtgen, M.T., Ankney, M.E., Petersen, S.V., and Tobin, T.S. Calcium cycle instability before and during the end-Cretaceous extinction. For submission to *Geology*.
- **Linzmeier, B. J.**, Morphology of the Foraminifera genus *Ammonia* responds to salinity stress. For submission to *The Journal of Foraminiferal Research*.

SELECTED PROFESSIONAL TALKS (* denotes invited talk; # denotes student co-author)

- **Linzmeier, B.J.***, 2018, Big picture, small spots: *in situ* geochemistry applied to paleobiology and paleoclimatology, University of Illinois, Chicago, Department of Geology, Chicago, Illinois.
- **Linzmeier, B.J.**, 2018, Refining the interpretation of oxygen isotope variability in cephalopods, National GSA conference, Indianapolis, Indiana.
- **Linzmeier, B.J.***, 2018, 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 $\delta^{18}\text{O}$ of cephalopods, 10th International Symposium, Cephalopods - Present and Past, Fes, Morocco.
- **Linzmeier, B.J.***, 2018, Big picture, small spots: *in situ* geochemistry applied to paleobiology and paleoclimatology, Northwestern University, Earth and Planetary Science Seminar, Evanston, Illinois.

- **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.
- **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)

- **Linzmeier, B.J.**, Jacobson, A.D., Sageman, B.B., Hurtgen, M.T., Ankney, M.E., and Landman, N.H. 2018, 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. 2018, 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. 2018, The geographic distribution of ammonite morphotypes, 10th International Symposium, Cephalopods - Present and Past, Fes, Morocco.
- #Assing, D.A., **Linzmeier, B.J.**, and Ward, P.D., 2016, Stable oxygen and carbon isotope profiles of high-latitude Late Cretaceous bivalves from Seymour Island, Antarctica, North Central GSA conference, Urbana-Champaign, Illinois.
- **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 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*)

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 epithecal 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*

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**
2017 **Dissertation Completion Fellowship**
2016 **O. B. Shelburne Research Assistantship**
2016 **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

2018 *Climate change teaching workshop*
2017 *National GSA conference session chair*

University of Wisconsin - Madison

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*

Bowling Green State University

2009 Built Geology Exhibit for Wood County History Museum

2006-2009 Elected positions: Geology Club (President, Vice President)

2007-2009 Elected positions: Sigma Gamma Epsilon (President, Vice President)

PROFESSIONAL ORGANIZATIONS

Geological Society of America
Paleontological Society

National Association of Geoscience Teachers
American Association of Petroleum Geologists