

BENJAMIN J. LINZMEIER  
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## EMPLOYMENT

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(October 2019 →)

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

(August 2020 – December 2020)

**University of Wisconsin - Madison**  
**Geoscience Department Lecturer**  
Geology 100

(2017 – 2019)

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

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## EDUCATION

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(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*

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## SKILLS SUMMARY

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**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; SQL; Inkscape; GIMP; QGIS

**teaching:** Active learning; backwards-design; online learning.

## 2021

Hoffmann, R., Slattery, J.S., Kruta, I., **Linzmeier, B. J.**, Lemanis, R., Mironenko, A., Goolaerts, S., De Baets, K., Peterman, D.J., and Klug, C. Recent advances in heteromorph ammonoid palaeobiology. *Biological Reviews*: doi.org/10.1111/brv.12669

## 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*. 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. *Earth and Planetary Science Letters*: doi.org/10.1016/j.epsl.2020.116211

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. *PLoS One*: doi.org/10.1371/journal.pone.0223872

## 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., Xiaio, 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.

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

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 preparation for Sedimentary Geology.

**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.**, 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.

## 2020

Quinn, D.P., **Linzmeier, B.J.**, Sundell, K., Bruck, B., Ye, S., Gehrels, G., Goring, S.M., Singer, B.S., Marcott, S., Meyers, S.R., Peters, S.E., Ross, J.I., Schmitz, M., and Williams, J.W., The Sparrow laboratory information management system – a tool for connecting geochemical data to context and community. National GSA conference, Online.

Denny, A.C., **Linzmeier, B.J.**, Kitajima, K., and Cammock, J.N. Integrating Geochemical Data and Raster Images to Produce Highly Detailed Sample Maps in a GIS Environment. National GSA Conference, Online

Wang, J., Kitch, G.D., **Linzmeier, B.J.**, Jacobson, A.D., Sageman, B.B., and Hurtgen, M.T. Calcium isotope variability across ancient candidate ocean acidification events. National GSA conference, Online.

Helser, T., Kastle, C., Crowell, A., **Linzmeier, B.J.**, Scicchitano, M., and Gagnon, A., A paleoclimate record of coastal Gulf of Alaska as revealed through *in situ*  $\delta^{18}O$  and  $\delta^{13}C$  from SIMS and trace elements from LA-ICPMS of ancient Pacific cod otoliths, World Fisheries Congress, Adelaide, Australia.

## 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.

## 2020

**Linzmeier, B.J.**, High Spatial-resolution Assessment of Diagenesis and Primary Isotopic Variability in Maastrichtian Molluscan Carbonates from Antarctica, Microscopy and Microanalysis, Milwaukee, Wisconsin.

Quinn, D.P., **Linzmeier, B.J.**, Sundell, K.E., #Bruck, B.T., #Ye, S., Gehrels, G.G., Goring, S.M., Marcott, S.A., Meyers, S.R., Peters, S.E., Ross, J.I., Schmitz, M.D., Singer, B.S., Williams, J.W., The Sparrow software interface for linking analytical data and metadata in laboratory archives, Earthcube Annual Meeting

## 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 *Hoploscaphites*, 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.

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RESEARCH GRANTS (Total: \$9,235)

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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*

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HONORS/AWARDS (Total: \$125,235)

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**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

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RESEARCH MENTORSHIP

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

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

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

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

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TEACHING EXPERIENCE

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- Workshops and short courses:

**Earthcube Geochronology Sparrow Workshop** online before GSA 2020

**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 lecturer*):

**Introductory Geology** 300+ students, online

- 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

## SERVICE AND OUTREACH

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### University of Wisconsin - Madison

2020 *Reviewer: Palaeogeography, Palaeoclimatology, Palaeoecology, Geology, PLoS ONE, Paläontologische Zeitschrift*

2020 *National GSA conference session chair*

2020 *Microscopy & Microanalysis session chair*

2019 *Reviewer: Geochimica et Cosmochimica Acta*

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*

### 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*

## INTERNSHIPS

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### **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*

## PROFESSIONAL ORGANIZATIONS

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Geological Society of America  
Paleontological Society

National Association of Geoscience Teachers