

CURRICULUM VITAE

Brian E. Bodenbender

PERSONAL

Address: Department of Geological and Environmental Sciences, Hope College, P. O. Box 9000,
Holland, MI, 49422-9000, U. S. A.
Telephone: W: (616) 395-7541 H: (616) 396-7125 Fax: (616) 395-7125 E-mail: bodenbender@hope.edu

EDUCATION

1994 Ph. D. Geological Sciences, The University of Michigan
1990 M. S. Geological Sciences, The University of Michigan
1987 B. A. with honors, Geology, The College of Wooster

SCHOLARSHIPS AND FELLOWSHIPS

1997 NSF Summer Program Fellow, Stressed Stream Analysis, The State University of New York
College at Brockport
1995 - 1996 University Postdoctoral Fellowship, The Ohio State University
1987 - 1990 National Science Foundation Graduate Fellowship
1983 - 1987 National Presbyterian Scholarship
1983 - 1987 College Scholarship, The College of Wooster
1983 National Merit Scholarship

AWARDS AND HONORS

1993 Best Poster Award, Geological Society of America Annual Meeting
1990 Ermine Cowles Case Student Award, The University of Michigan
1987 Robert W. McDowell Prize in Geology, The College of Wooster
1987 Phi Beta Kappa
1987 The Phi Beta Kappa Prize, The College of Wooster
1987 Sigma Delta Pi (Spanish honorary)
1986 Edward Taylor Prize, The College of Wooster
1986 Karl Ver Steeg Prize in Geology and Geography, The College of Wooster
1984 Elias Compton Freshman Prize, The College of Wooster

TEACHING POSITIONS

2007 - pres. Chair, Department of Geological and Environmental Sciences, Hope College
2002 - pres. Associate Professor of Geological and Environmental Sciences, Hope College
1996 - 2002 Assistant Professor of Geological and Environmental Sciences, Hope College
1995 Lecturer II, Department of Geological Sciences, University of Michigan
1994 Instructor, TA Training Program, University of Michigan
1993 Instructor, Department of Geological Sciences, University of Michigan
1990 - 1992 Graduate Student Teaching Assistant, Dept. of Geological Sciences, University of Michigan
1986 - 1987 Teaching Assistant, Geology Department, The College of Wooster

EXTERNAL RESEARCH FUNDING

2010 Great Lakes Colleges Association New Directions Initiative (Co-PI: S. Nelson). In-the-Round 3D
Photogrammetric Computer Modeling of Dinosaur Fossils: \$4,800
2005 Co-PI on Reactor Sharing grant (PI: G. F. Peaslee, Co-PIs A. M. Cartwright and T. M. Demko), The
University of Missouri Research Reactor Center: \$2,400
2004 NSF REU – REU Site Investigation: Paleoenvironmental characterization of a dinosaur site in the Morrison
Formation of the Bighorn Basin, Wyoming (T. M. Demko, Co-PI): \$232,513
2003 Co-PI on NSF MRI grant (PI: G. F. Peaslee). MRI/RUI: Acquisition of a Nuclear Microprobe System for
Interdisciplinary Research and the Integration of Research and Undergraduate Education at Hope College:
\$680,000
1999 Petroleum Research Fund – GIS database of Middle Devonian fossil occurrences in the Michigan Basin:
\$25,000
1998 NSF ILI-IP – Environmental Science Instrumentation for Interdisciplinary Undergraduate Research Teams
(G. F. Peaslee and J. W. Peterson, Co-PI's): \$27,365

- 1991 Geological Society of America Research Grant: \$640
- 1991 Paleontological Society Grant-in-Assistance: \$500

EXTERNAL FUNDING FOR STUDENTS

- 2008 Michigan Space Grant Consortium Student Fellowship (sponsored T. J. Depke): \$2,500
- 2001 Arranged alumnus-funded internship at Mohonk Preserve, New Paltz, NY (S. Little): \$2,500
- 2000 Michigan Space Grant Consortium Student Fellowship (sponsored Y. I. Tulu): \$2,500
- 1998 Michigan Space Grant Consortium Student Fellowship (sponsored K. L. Dunkelberger): \$2,500
- 1998 Council on Undergraduate Research Geology Summer Undergraduate Research Experience (sponsored E. J. Hiemstra): \$5,000

INTERNAL FUNDING

- 2009 Hope College Howard Hughes Medical Institute Professional Development Award. Sabbatical support for digital photogrammetry research: \$1,000
- 2008 Hope College Jacob E. Nyenhuis Faculty Development Grant. Digital Photogrammetry to Support Detailed Outcrop Mapping and Computer Modeling: \$4,400
- 2007 ACAT Campus Technology Fund. Software for digital photogrammetry and 3-dimensional modeling of irregular surfaces. (B. E. Bodenbender, E. C. Hansen, S. Nelson, and R. L. Veldman): \$4,000
- 2007 Computational Science and Modeling Scholar grant: \$448
- 2005 Hope College-Howard Hughes Medical Institute Faculty Development Grant – Interdisciplinary Case Study development (T. M. Evans, co-PI): \$2,500
- 1999 The Hope College-Howard Hughes Medical Institute Faculty Development Grants for Curriculum Development – Natural History of the Great Plains and Rocky Mountains Regions (T. M. Evans, co-PI): \$3,374.60

EDITORIAL POSITION

- 2006 - pres. Co-Editor for *Michigan Academician*

RESEARCH POSITIONS

- 1994 Research assistant, Exhibit Museum of Natural History (Michigan): molded and cast specimens for display
- 1993 - 1995 Research assistant to Dr. Laurel Collins (Michigan): prepared Recent and fossil foraminifera for isotopic studies
- 1991 - 1992 Museum assistant to Dr. Michael Foote (Michigan): Responsible for general curation of specimens, library literature searches, and transfer of specimens from stratigraphic to systematic collections
- 1990 - 1994 Research assistant to Dr. Daniel Fisher (Michigan): projects included study of distribution, life orientation, and skeletal crystallography of stylophoran echinoderms; preservation of mastodon bones; molding and casting mastodon footprints; and processing Pleistocene sediments for mammals

PUBLICATIONS AND THESES

- 2005 Multidisciplinary field investigations: using shared logistics to increase research productivity. *CUR Quarterly* 25(4): 156-161. (B. E. Bodenbender and T. M. Demko)
- 2004 A reconnaissance of skeletal crystallography in rhombiferans, diploporans, and paracrinoidea. *Journal of Paleontology* 78: 1153-1161. (B. E. Bodenbender and E. J. Hiemstra)
- 2003 Blastoid stratocladistics — reply to Sumrall and Brochu. *Journal of Paleontology* 77: 195-198. (D. C. Fisher and B. E. Bodenbender)
- 2003 Facing the About: Why Disciplines are Essential to the Liberal Arts. *LiberalArtsOnline* 3 (10): <http://www.liberalarts.wabash.edu/lao-3-10-discipline-crit-think/> (electronically-published essay, reviewed by Editorial Board).
- 2001 Stratocladistic analysis of blastoid phylogeny. *Journal of Paleontology* 75: 351-369. (B. E. Bodenbender and D. C. Fisher)
- 2000 Skeletal crystallography and crinoid calyx architecture. *Journal of Paleontology* 74: 52-66. (B. E. Bodenbender and W. I. Ausich)
- 2000 The Environmental Science Minor: a disciplinary approach to interdisciplinary studies with a grounding in undergraduate research. *Council on Undergraduate Research Quarterly* 21: 72-76. (B. E. Bodenbender, E.

- C. Hansen, G. F. Peaslee, and J. W. Peterson) [not peer reviewed; invited paper published under editorial supervision]
- 1997 Echinoderm skeletal crystallography and paleobiological applications. *Paleontological Society Papers* 3: 191-204.
- 1996 Patterns of crystallographic axis orientation in blastoid skeletal elements. *Journal of Paleontology* 70: 466-484.
- 1995 Morphological, crystallographic, and stratigraphic data in cladistic analyses of blastoid phylogeny. *Contributions from the Museum of Paleontology, the University of Michigan* 29: 201-257.
- 1994 Morphometric analysis of lumbar vertebra UMP 67-28: implications for spinal function and phylogeny of the Miocene Moroto hominoid. *Journal of Human Evolution* 26: 203-237. (W. J. Sanders and B. E. Bodenbender)
- 1994 Skeletal crystallography in cladistic and stratocladistic investigations of blastoid phylogeny. Ph.D. dissertation, the University of Michigan. 287 p.
- 1993 CalcAxes: a program for computation of calcite crystallographic axis orientations. *Contributions from the Museum of Paleontology, the University of Michigan* 28: 327-363. (D. C. Fisher and B. E. Bodenbender)
- 1990 Crystallography of edrioasteroid ambulacral cover plates. Unpublished Master's thesis, the University of Michigan. 24 p.
- 1989 Paleocology of *Sphenothallus* on an Upper Ordovician hardground. *Lethaia* 22:217-225. (B. E. Bodenbender, M. A. Wilson, and T. J. Palmer)

ABSTRACTS

- 2010 3D modeling of sand dune surfaces using close range digital photogrammetry: A progress report. Geological Society of America Abstracts with Programs 42(5):295. (R. A. Medina, C. C. Nyboer, and B. E. Bodenbender)
- 2010 Promise and Limitations of Close Range Digital Photogrammetry for 3D Modeling of Sand Dunes. Presentation at East Lakes Division of the Association of American Geographers, Grand Rapids, Oct. 23.
- 2010 Quantification of sand movement in Lake Michigan coastal dunes using close-range digital photogrammetry. Michigan Academician 40: in press. Presentation at Michigan Academy Annual Meeting Mar. 26.
- 2009 Modeling sand dune surfaces using close-range digital photogrammetry. Geological Society of America Abstracts with Programs 41(4):64. (B. E. Bodenbender and D. J. Callam)
- 2007 Sedimentology and taphonomy of Red Canyon Ranch dinosaur quarry Jurassic Morrison Formation, Big Horn Basin, Wyoming. Geological Society of America Abstracts with Programs 39(5):42. (D. J. Riese, M. A. Wismer, B. E. Bodenbender, and T. M. Demko)
- 2007 Macrofossils and microfossils found at a dinosaur site in the Bighorn Basin, Wyoming. Geological Society of America Abstracts with Programs 39(3):9. (C. J. Gray, S. D. Pels, B. E. Bodenbender, and T. M. Demko)
- 2007 Paleobotany of the Sykes Mountain Formation (Early Cretaceous), Bighorn Basin, Shell, Wyoming. Geological Society of America Abstracts with Programs 39(3):10. (K. A. Walton*, B. M. Blake, B. E. Bodenbender, and T. M. Demko)
- 2006 Rare Earth Element comparison of vertebrate assemblages in the Morrison and Cloverly formations. Geological Society of America Abstracts with Programs 38(7):355. (A. M. Cartwright, T. M. Demko, B. E. Bodenbender, and G. F. Peaslee)
- 2006 An investigation of microvertebrates in the Morrison Formation near Shell, Wyoming. Geological Society of America Abstracts with Programs 38(4):67. (S. F. Derby, B. E. Bodenbender, and T. M. Demko)
- 2006 Taphonomy of a sauropod quarry in the upper Morrison Formation, Bighorn Basin, Wyoming. Geological Society of America Abstracts with Programs 38(4):62. (E. E. Ergas, B. E. Bodenbender, and T. M. Demko)
- 2006 Paleoenvironmental and depositional setting of two dinosaur bone-bearing quarries in the Morrison Formation (Upper Jurassic) of Wyoming. Geological Society of America Abstracts with Programs 38(4):75. (K. M. Loughney, T. M. Demko, and B. E. Bodenbender)
- 2005 Taphonomy, taxonomy, and anatomy of sauropod and theropod dinosaur remains from the Upper Jurassic Morrison Formation near Shell, WY. *Geological Society of America Abstracts with Programs* 37(5):33. (S. Kubarek, E. Swor, E. Ramirez, B. E. Bodenbender, and T. M. Demko)
- 2005 Description of paleosols in the Upper Jurassic Morrison and Lower Cretaceous Cloverly Formations near a dinosaur site in the Bighorn Basin, WY. *Geological Society of America Abstracts with Programs* 37(5):33. (E. E. Baar, M. Yonovitz, T. M. Demko, and B. E. Bodenbender)

- 2005 Fluvial sedimentology and plant taphonomy of a dinosaur site and associated strata, Upper Jurassic Morrison and Lower Cretaceous Cloverly Formations, Bighorn Basin, Wyoming. *Geological Society of America Abstracts with Programs* 37(5):32. (J. C. Murphy, E. C. Clites, T. M. Demko, and B. E. Bodenbender)
- 2005 Development of a stratigraphic column and geologic map of a Morrison Formation dinosaur site, Bighorn Basin, WY. *Geological Society of America Abstracts with Programs* 37(5):32. (J. Scott, C. W. Holbrook, T. M. Demko, and B. E. Bodenbender)
- 2005 An REU enables intensive and extensive multidisciplinary field research: the example of an Upper Jurassic dinosaur site in the Bighorn Basin, Wyoming. *Geological Society of America Abstracts with Programs* 37(7):491. (B. E. Bodenbender, T. M. Demko, and M. D. Uhen)
- 2004 Mineralogy of beach and dune sand near Holland, Michigan. *Michigan Academician* 36: 55-56. (Bodenbender, B., E. Hansen, D. Miller, and M. Knapman)
- 2004 Paleoenvironmental analysis of a Morrison Formation dinosaur site, Bighorn Basin, WY: conducting an interdisciplinary field study through disciplinary tasks. *Geological Society of America Abstracts with Programs* 36(5):233. (T. M. Demko, B. E. Bodenbender, E. E. Baar, C. W. Holbrook, S. J. Kubarek, J. Murphy, E. M. Ramirez, J. E. Scott, E. Swor, M. Yonovitz, E. C. Clites, and C. J. Thomason)
- 2003 Magnetite-Enriched Layers in a Massive Parabolic Dune along the Eastern Shore of Lake Michigan. *Michigan Academician* 35:71. (B. G. Johnson, B. E. Bodenbender, and E. C. Hansen)
- 2003 Mineralogy of beach and dune sand, southeastern shore of Lake Michigan. *Geological Society of America Abstracts with Programs* 35(6):174. (M. Y. Knapman, D. L. Miller, B. E. Bodenbender, E. C. Hansen, and K. G. Havholm)
- 2002 Magnetite layers in a massive parabolic dune, southeastern shore of Lake Michigan. *Geological Society of America Abstracts with Programs* 34(6):132. (B. G. Johnson, B. E. Bodenbender, B. P. Yurk, and E. C. Hansen)
- 2001 GIS in undergraduate research: selectively honing tools of the trade. *Geological Society of America Abstracts with Programs* 33(6):A-179. (B. E. Bodenbender and E. C. Hansen)
- 2001 Skeletal crystallography of original and regenerating crinoid spines. *Geological Society of America Abstracts with Programs* 33(6):A-11. (B. E. Bodenbender and S. M. Sanford)
- 2000 The Environmental Science Minor: a disciplined approach to interdisciplinary studies. *Abstracts. Council on Undergraduate Research 8th National Conference*: 28. (B. E. Bodenbender, E. C. Hansen, G. F. Peaslee, and J. W. Peterson)
- 2000 Interdisciplinary research teams in environmental science: three watershed examples. *Abstracts. Council on Undergraduate Research 8th National Conference*: 39. (B. E. Bodenbender, E. C. Hansen, G. F. Peaslee, and J. W. Peterson)
- 2000 Do Paleozoic stromatoporoids record paleoenvironmental information? *Fifth Annual Michigan Space Grant Consortium Conference*. (Y. I. Tulu and B. E. Bodenbender)
- 2000 Recording the fossil record: a GIS database of Middle Devonian fossils in the Michigan Basin. *Geological Society of America, Abstracts with Programs* 32(7):A131. (C. A. Ferguson, B. E. Bodenbender, J. L. Jones, and K. Ahmed)
- 1999 Reconstructing the geomorphic chronology of massive lake-terrace dunes along Lake Michigan. *Geological Society of America, Abstracts with Programs* 31(7):A50. (A. F. Arbogast, M. D. Van Oort, E. C. Hansen, B. E. Bodenbender, J. P. Buckingham, and M. J. Ingersoll)
- 1998 Preliminary investigations of cystoid skeletal crystallography. *Geological Society of America, Abstracts with Programs* 30(2):7. (B. E. Bodenbender and E. J. Hiemstra)
- 1998 Skeletal crystallography of cystoids and paracrinooids. *Geological Society of America, Abstracts with Programs* 30(7):A-30. (B. E. Bodenbender and E. J. Hiemstra)
- 1996 Orientations of *a* axes in echinoid apical elements. *Geological Society of America, Abstracts with Programs* 28(7):A298.
- 1996 Orientations of crystallographic axes in skeletal elements of Ordovician crinoids. *Sixth North American Paleontological Convention Abstracts of Papers*. The Paleontological Society Special Publication number 8:39. (B. E. Bodenbender and W. I. Ausich)
- 1995 Echinoderm skeletal morphology and crystallographic axis orientations. *Geological Society of America, Abstracts with Programs* 27 (6):A367. (B. E. Bodenbender and D. C. Fisher)
- 1994 Stratocladistic reconstruction of blastoid evolutionary history. *Geological Society of America, Abstracts with Programs* 26 (7):A427.
- 1993 Crystallographic patterns in blastoid skeletal elements. *Geological Society of America, Abstracts with Programs* 25 (6):A55.

- 1993 Integrated shape change in elliptical globose blastoids. *American Zoologist* 33 (5): 71A. (D. L. Swiderski, M. Foote, and B. E. Bodenbender)
- 1992 Blastoid phylogeny: Morphological and crystallographic evidence. *Geological Society of America, Abstracts with Programs* 24 (7):A46.
- 1990 Potential of skeletal crystallography as a phylogenetic tool in edrioasteroids. *Geological Society of America, Abstracts with Programs* 22 (7):A267.

FIELD EXPERIENCE

- 2009 Co-led field course on Island Biology and Geology, San Salvador, Bahamas
- 2008 - pres. Digital photogrammetry of Lake Michigan coastal dunes
- 2005 Co-led field course on Tropical Botany and Geology, San Salvador, Bahamas
- 2004 - 2006 Led dinosaur excavation, Big Horn Basin, Wyoming
- 2003 Salvage excavation of *Camarasaurus* skull site, Big Horn Basin, Wyoming
- 2001 Site scoping for dinosaur excavation, Big Horn Basin, Wyoming
- 2001 Site investigation of mastodon find, Glenn, Michigan
- 2000 Led field course on Natural History of the Rocky Mountains, Wyoming
- 1999 Course preparation for Natural History of the Rocky Mountains, Wyoming
- 1999 Led field course on regional geology of West Texas
- 1998 Excavated mastodon remains in southwestern Michigan
- 1997 Collected stromatolites in Upper Peninsula, Michigan
- 1997, 2001 Led field course on regional geology of the Bahamas, San Salvador, Bahamas
- 1996 Field course on carbonate depositional systems, San Salvador, Bahamas
- 1992 Field assistant to Dr. Daniel Fisher (Michigan): excavated Pleistocene mammals in southeastern Michigan, exhumed mastodon footprints and made mold of trackway
- 1991 Field assistant to Drs. Gregg Gunnell and Philip Gingerich (Michigan): collected Eocene vertebrates in the Bridger and Big Horn basins, Wyoming
- 1987 Field assistant to Dr. Philip Gingerich (Michigan): collected Eocene vertebrates in the Big Horn Basin, Wyoming
- 1986 - 1987 Field work with Dr. Mark Wilson (College of Wooster) and Dr. Tim Palmer (University College of Wales, Aberystwyth): collected Ordovician hardgrounds in Tennessee, Ohio, Kentucky, Indiana, and Ontario
- 1986 Field geology course, University of Arizona

SOCIETY MEMBERSHIPS

Geological Society of America; Palaeontological Association; Paleontological Society; Society of the Sigma Xi; National Center for Science Education; Michigan Karst Conservancy; Michigan Academy of Science, Arts, and Letters

COMMITTEE AND OTHER SERVICE

Writing Across the Curriculum Committee, Student Faculty Judicial Board, Critical Issues Symposium Committee, Science Day Committee, Professional Interests Committee (Secretary, 2003-2005), Museum Committee, Advisory Committee on Financial Resources, Student Scholarship Committee, Undergraduate Research IT Committee, REACH Committee, Library Committee (Chair, 2008-2009).

COURSES TAUGHT

Geology

Physical Geology
 Physical Geology Lab
 How the Earth Works (half-semester)
 Historical Geology
 Historical Geology Lab
 Invertebrate Paleontology
 Invertebrate Paleontology Lab
 Fossil Identification and Interpretation
 Sedimentology and Stratigraphy
 Sedimentology and Stratigraphy Lab

Regional Geology of the Bahamas
Regional Geology of West Texas
Natural History of the Great Plains and Rocky Mountains Regions (team-taught)
Tropical Geology and Botany (team-taught)

General Education

Atmospheres and Environmental Change Lab
Evolution of Dinosaurs (half-semester)
Stars and Planets (planetary half)
Stars and Planets Lab (team-taught, 1/3 of semester)
The Planets (half-semester)
Planet Earth (Earth Systems Science revision of Physical Geology)
Planet Earth Lab (revision of Physical Geology Lab)

Environmental Science

Advanced Environmental Seminar