Dr. Joel W. Hudley

Curriculum Vitae

Department of Geological Sciences
University of North Carolina at Chapel Hill
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EDUCATION

2012 Ph.D., Geological Sciences, University of North Carolina, Chapel Hill, NC
Dissertation: Reconstructing modern and Pliocene (c. 5.4-2.4 Ma) decadal climate variations in the paleoenvironments of the Mid-Atlantic Bight using isotope and increment sclerochronology

2005 M.A. with thesis, Geological Sciences, State University of New York at Binghamton University, Vestal, NY

2001 B.S., Geophysics, State University of New York at Binghamton University, Vestal, NY

1999 Attended, United States Military Academy, West Point, NY

ACADEMIC EXPERIENCE

2012-present Assistant Teaching Professor, UNC-Chapel Hill, Chapel Hill, NC

2012 Lecturer, North Carolina State University, Raleigh, NC

2010-2011 Instructor, UNC-Chapel Hill, Chapel Hill, NC

PUBLICATIONS & PRESENTATIONS

Peer-reviewed Publications

Winkelstern, I., Surge, D., and **Hudley, J.W**., 2013. Multi-proxy Sclerochronological Evidence for Plio-Plesitocene Regional Warmth: US Mid-Atlantic Ocean Plain, *Palaios* 28: 649-660.

Wingard, G.L. and **Hudley, J.W**., 2011. Application of a weighted-averaging method for determining paleosalinity: a tool for restoration of south Florida's estuaries. *Estuaries and Coasts*, Vol. 35, No. 1, p. 262-280.

Technical Reports, Refereed Proceeding, and White Papers

Wingard, G.L., **Hudley, J.W**., and Marshall, F.E., 2010. Estuaries of the Greater Everglades Ecosystem: Laboratories of Long-term, USGS Fact Sheet 2010–3047, 4 p.

Wingard, G.L., **Hudley, J.W**., Holmes, C.W., Willard, D.A., and Marot, M., 2007. Synthesis of Age Data and Chronology for Florida Bay and Biscayne Bay Cores Collected for Ecosystem History of South Florida's Estuaries Projects. USGS Open-File Report 2007-1203, 127 p.

Wingard, G.L., Budet, C.A., Ortiz, R.E., **Hudley, J.W**., and Murray, J.B., 2006. Descriptions and Preliminary Report on Sediment Cores from the Southwest Coastal Area, Part II: Collected July 2005, Everglades National Park, Florida. USGS Open-File Report 2006-1271, 33 p.

Published Abstracts †student mentored

Hudley, J.W. and †Collins, E.L, 2018. The bivalve *Glycymeris americana* as a record of sclerochronological and isotopic temperature data from the Charleston Sea (Late Pliocene to Recent presented at the 2018 Annual Meeting, GSA, Indianapolis, IN 4-7 Nov.

Hudley, J.W., 2016. Investigating of the spatial and temporal persistence of the El Nino Southern Oscillation and South Atlantic oceanic dipoles systems using sedimentological evidence from marine core presented at 2016 Annual Meeting, GSA, Denver, CO., 25-28 Sep.

Wingard, G.L., **Hudley, J.W.**, Stackhouse, B.L., Marshall, F.E. and Pitts, P.A., 2015. Application of Holocene paleo-salinity estimates to Everglades restoration performance measures. Annual Meeting, GSA, Baltimore, MD, 1-4 Nov.

†Garrick, J., **Hudley, J.W**. and Surge, D., 2014. A Late Holocene sclerochronological analysis of bivalve *Arctica islandica* from the Mid-Atlantic Bight presented at the 2014 Annual Meeting, GSA, Vancouver, BC, 19-22 Oct.

Hudley, J.W. and Surge, D., 2013. Investigation of the inferred climatic variations in the Pliocene shells of *Glycymeris americana*, North Carolina and Virginia presented at the 3rd International Sclerochronology Conferences, Caernarfon, Wales, UK 18-22 May.

Hudley, J.W., 2012. Sclerochronologic and paleoenvironmental records in marine bivalves from the Duplin Formation, North Carolina presented at the 2012 Annual Meeting, GSA, Charlotte, N.C., 4-7 Nov.

Hudley, J.W. and Surge, D., 2011. Investigation of growth patterns and climate signals using isotope Sclerochronology in shells of two Pliocene marine bivalves presented at the 2011 Annual Meeting, GSA, Minneapolis, Minn., 9-12 Oct.

Hudley, J.W. and Surge, D., 2010. Evidence of interannual shelf water variability along the Western Middle Atlantic during the Pliocene presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.

Hudley, J.W. and Surge, D., 2010. Reconstructing the Variability in Shelf Water Bottom Temperatures in the Middle Atlantic Bight from Annual Growth Increments presented 2nd International Sclerochronolgy Conference, Mainz, Germany, 24-28 Jul.

Wingard, G.L. Marshall, F.E., Pitts, P.A., and **Hudley, J.W**., 2009. Paleoecologic Tools for Restoration: Setting Performance Measures in South Florida's Estuaries: National Conference on Ecosystem Restoration, Abstracts, p. 413, 20-24 Jul.

Wingard, G.L. and **Hudley, J.W**., 2008. Verification of a Molluscan Dataset for Paleosalinity Estimation Using Modern Analogues: A Tool for Restoration of South Florida's Estuaries:

Florida Bay and Adjacent Marine Systems Science Conference Abstracts, p. 160-161, 8-11 Dec.

Wingard, G.L. and **Hudley, J.W**., 2005. The Challenges of Setting Performance Measures for South Florida's Estuaries: Nearshore Transition Zones versus Middle to Outer Bay Zones: Florida Bay Science Conference, 11-14 Dec.

Hudley, J.W., 2004. Sedimentological and geophysical study of the stratigraphy and development of modern carbonate islands, Cotton Key, Florida. Geological Society of America Abstracts with Programs, Vol. 36, No. 5, p. 369.

Manuscripts in Preparation *(drafts available upon request)*

Hudley, J.W. and Surge, D. In search of long-lived bivalves from the Pliocene western Mid-Atlantic: Stable isotope and increment analysis of large marine bivalves, Virginia and North Carolina, U.S.A.

Hudley, J.W., Reconstructing seasonal to decadal climate variations in the Duplin Formation, NC using bivalve sclerochronology

FELLOWSHIPS

2011	Future Faculty Fellow, University of North Carolina, Chapel Hill
2007 -2011	Alliance for Graduate Education and the Professoriate (AGEP-NSF) Fellow
2011	Southern Regional Education Board Compact for Faculty Diversity Fellow
2002-2004	Clifford D. Clark Fellow, Binghamton University-SUNY, Vestal

EXTERNAL AND INTERNAL FUNDING

2016 Support the Construction of an Augmented Reality Sandbox for Geology 101/101L, Summer School Equipment Funding, Chapel Hill - $5,000

2011 Learning Space Design Improvements, SmartBoard technologies, University of North Carolina, Chapel Hill - $7,200

Invited talks and Presentations

2018 An example for investigating the Geologic Timescale: Index fossils and Card sorts. Department of Physical Sciences, Pensacola State College, Pensacola FL

2015 Revealing long-term variations of short-term events using macrofaunal proxies: Developing climate proxies for human time scales, Department of Geology, University of Dayton, Dayton, OH

Campus or Departmental talks

2014 Developing Climate Proxies for Human Timescales- Shells as Records of Environmental Change, Department of Geological Sciences, UNC-Chapel Hill, Chapel Hill, NC

TEACHING EXPERIENCE

Awards

2013 Walter H. Wheeler Faculty Teaching Award, Geological Science, Chapel Hill
2010 Walter H. Wheeler Student Teaching Fellow, Geological Science, Chapel Hill

Teaching

2010 -2019 University of North Carolina at Chapel Hill
Planet Earth, an intro level, 3-credit General Education (Gen Ed) (11 semesters)
Coordinator, Intro Geology Lab (21 sections), 1-credit Gen Ed (2 semesters)
Planet Earth Lab, an intro level, 1-credit Gen Ed (6 semesters)
Prehistoric Life, an intro level, 3-credit Gen Ed (4 semesters)
Energy Resources, 3-credit elective for majors and non-majors (7 semesters)
Sedimentology and Stratigraphy with lab, a 4-credit upper level (6 semesters)
Paleoclimatology, a 3-credit upper level elective (1 semester)
Paleoceanography, a 3-credit upper level elective (2 semesters)
Marine Carbonate Sediments, a 2-credit experiential field course (2 semesters)
2012 North Carolina State University
Oceanography, an intro level, 3-credit Gen Ed. (1 semester)
2008-2010 University of North Carolina at Chapel Hill
Teaching Assistant, Planet Earth and lab (4 semesters)
2002-2004 State University of New York at Binghamton University
Teaching Assistant, Planetary Geology (4 semesters)

Mentorship & Research Advisees

2019 Chase Porter, B.S. 2019, Honors Research- Thesis: Stratigraphic modeling of carbonate sediment dominated margins using fuzzy logic
2018 Gracie Pearsall, B.S. 2019, Independent Research - Findings from the geometric morphometric comparison of genera within the family Pectinidae, Chesapeacten from the western Atlantic margin
2018 Mentor, On To the Future Program (OTF-GSA) of the Geological Society of America
2017 Elyssa Collins, B.S. 2019, NSF-IDEA- Examination of *Glycymeris americana* to Determine Short-Term Climate Variability During the Late Neogene
2017 Ricardo Garcia, B.S. 2018, NSF-IDEA - Sclerochronological Analysis of Two Contemporary Continental Shelf Bivalves and its Paleoceanographic Significance
2017 Grady Johnson, B.S. 2018, Independent Research - A quantitative data analysis on Late Neogene North American Gulf Coast macrofaunal assemblages
2016 Mentor, On To the Future Program (OTF-GSA) of the Geological Society of America

2016 Eric Eubanks, B.S., 2016, Independent Research - Estimating seawater temperature variations in the Waccamaw (Pleistocene) and Duplin Formations (Pliocene), NC using macrofossil assemblages
2016 David Ingram, B.A. 2018, Independent Research- Habits of Successful Survivors: Insights from Late Neogene Paleontological Record of Bivalves in the Carolinian and Floridian Provinces
2016 Kyle Krajewski, B.S. 2019, Conservation of Paleobiology Resources: Investigating the spatial and temporal changes in fossil localities
2016 Mark Murray IV, B.A. 2018, NSF-IDEA - 3-D Imaging and morphological analysis of Chesepecten and Pecten spp. from Eastern North American Tertiary deposits
2016 Boyd Okwuonu, B.A. 2018, Independent Research - A quantitative data analysis on Late Neogene Western Atlantic bivalve assemblages
2016 Tyler Smith, B.S., 2016, Independent Research - An investigation of the spatial and temporal persistence of two (2) oceanic dipoles systems and there teleconnections using sedimentological evidence from marine cores
2015 Mentor, On To the Future Program (OTF-GSA) of the Geological Society of America
2015 Jonathan Garrick, B.S. 2016, NSF-IDEA - A late Holocene sclerochronological analysis of the bivalve Arctica islandica from the Mid-Atlantic Bight
2015 Corey Moore, B.A. 2016, NSF-IDEA - An examination of anthropogenic effects on biogenic sedimentation rates in the Upper Florida Keys
2008-2007 Graduate Advisor, Summer Pre-Graduate Research Experience (SPGRE-NSF), UNC-CH

RESEARCH EXPERIENCE

2010 Research Assistant, University of North Carolina at Chapel Hill
2010-2011 Researcher, Cherokee Nation Government Solutions, LLC
2007-2010 Researcher, ETI Professional, Inc., Durham, NC
2004- 2007 Research Assistant, ETI Professionals, Inc., Reston, VA
2001-2002 Information Specialist, ASK-USGS, Orkand Corporation, Reston, VA

SERVICE

University

2018-2019 Chair, UNC Tanner Award for Excellence in Undergraduate Teaching by Graduate Teaching Assistants Committee
2017- 2020 Faculty Representative, UNC Academic Support Program for Student Athletes Advisory Committee, Provost Appointed
2017-2020 Alternate, UNC Faculty Council, Non-tenured Representative
2017-2018 Member, UNC Tanner Award for Excellence in Undergraduate Teaching by Graduate Teaching Assistants Committee
2014-2016 Member, UNC Undergraduate Retention Committee

Department

2011-2016 Co-Advisor, UNC Chapel Hill Geology Club

2014 Member, Department Faculty Search Committee, Liquids in the Lithosphere

Journal Reviewing Efforts

Marine Environmental Research, Paleoceanography and Paleoclimatology, Palaeontologia Electronica

Public Outreach Activities

2018 Evaluator, Next Generation Science Standard Exams, Measurements, Inc.
2017-2018 Reviewer, Journal of Global and Planetary Change
2017 Evaluator, Online Curriculum, Carolina Biological Supply
2017 Exhibitor, UNC Science Expo, UNC-Chapel Hill- Augmented Reality Sandbox
2015 Exhibitor, UNC Science Expo, UNC-Chapel Hill- NC Fossils
2015 Reviewer, S. Marshak's Earth: Portrait of a Planet (Fifth Edition)
2014-2016 IDEA Saturday Academy, (NSF-IDEA), High School Students
2012-2015 Volunteer, UNC Females Excelling More in Math, Engineering & Science
2013 Exhibitor, UNC Science Expo, UNC-Chapel Hill- NC Rocks and Minerals
2012 Exhibitor, UNC Science Expo, UNC-Chapel Hill- NC Fossils
2011 Exhibitor, UNC Science Expo, UNC-Chapel Hill- Fossil Dig and Mineral Resources
2008-2012 Outreach to the National Pan-Hellenic Council Charters, UNC-Chapel Hill
2009-2011 Primary School Outreach, Orange and Wake County Public Schools

PROFESSIONAL AFFILIATIONS

Geological Society of America