

Patrick P. Pease

University Address

Dept. of Geography
University of Northern Iowa
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FIELDS OF INTEREST:

Geomorphology & Paleoenvironmental Reconstruction - aeolian sediment transport, agricultural erosion, landscape development in karst and arid environments, remote sensing

Aerosols/Dust - dust production and transport, including source area identification through geochemistry, environmental/anthropogenic conditions associated with dust generation, and the biogeochemical impacts of dust on people and the environment

Geochemistry - sediment source tracing, contaminant/ environmental tracing

EDUCATION:

Doctor of Philosophy - Geography, Texas A&M University 1998
Dissertation: *Aeolian Sediment Transport, Sultanate of Oman and the Arabian Sea.*

Master of Arts - Geology, Indiana State University 1994
Thesis: *Landscape Development in the Crawford Upland, South-Central Indiana.*

Bachelor of Science - Geology, Indiana State University 1991
Thesis: *The Paleomagnetic Stratigraphy of Wyandotte Cave and its Implications for Paleohydrology in South-Central Indiana.*

ACADEMIC EMPLOYMENT:

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| 2006-present | Associate Professor & Head , Department of Geography, University of Northern Iowa |
| 2004-2006 | Associate Professor , Department of Geography, East Carolina University |
| 1998-2003 | Assistant Professor , Department of Geography, East Carolina University |
| 1997-98 | Lecturer , Department of Geography, Texas A&M University |
| 1994-98 | Senior Researcher , NSF - JGOFS project, <i>Mineral Aerosol Input to the Arabian Sea</i> |
| 1993 | Research Assistant , NSF project, <i>Overbank Sedimentation During the Upper Mississippi River Flood, 1993</i> |
| 1991-93 | Teaching Assistant , Department of Geography and Geology, Indiana State University |
| 1992 | Physical Scientist , U.S.G.S., Water Resources Division, Indianapolis, Internship |

PUBLICATIONS (in review or preparation):

Paul Gares and Patrick Pease. “Airflow over Complex Coastal Dune Topography: Spatial Variations in Wind Speeds and Sediment Transport Patterns, Jockey’s Ridge, NC, USA”, *Earth Surface Processes and Landforms*, Accepted pending revisions.

Patrick Pease. “Composition and Source of Carbonate Grains in the Wahiba Sand Sea using a New LIBS Method”, In preparation-writing.

Patrick Pease. “Aeolian Dust-Associated Nutrient Flux from an Agricultural Field on the North Carolina Coastal Plain”, In preparation-writing.

Patrick Pease and Dennis Dahms. “Composition and Sources of Sand in the Killpecker Dunes, Wyoming”, In preparation-data analysis.

Patrick Pease et al. “An Examination of Lab-Based Hyperspectral Data for the Rapid, Non-Destructive Analysis of organic content in Lake Cores” , In preparation-data analysis.

PUBLICATIONS (peer reviewed):

- 2013 Patrick Pease. “Fused Glass Sample Preparation for Quantitative Laser-Induced Breakdown Spectroscopy of Geologic Materials”, *Spectrochimica Acta Part B: Atomic Spectroscopy*, 83/84: 37-49.
- Patrick Pease and Paul Gares. “The Influence of Topography and Approach Angles on Local Deflections of Airflow within a Coastal Blowout”, *Earth Surface Processes and Landforms*, 38: 1160-1169.
- 2007 Patrick Pease, Scott Lecce, Paul Gares, Catherine Rigsby. “Heavy metal contamination in sediment deposits on the Tar River floodplain following Hurricane Floyd”, *Environmental Geology*, 51(7): 1103-1111.
- Scott Lecce., Paul Gares, and Patrick Pease. Drainage ditches as sediment sinks on the Coastal Plain of North Carolina. *Physical Geography*, 27(5): 447-463. [2006 date but published in 2007]
- 2006 Scott Lecce, Patrick Pease, Paul Gares, Jingu Wang. “Seasonal controls on sediment delivery in a small coastal plain watershed, North Carolina, USA”, *Geomorphology*, 73: 246-260.
- Paul Gares, Michael Slattery, Patrick Pease and Jonathan Phillips. 2006. Eolian Sediment Transport on North Carolina Coastal Plain Agricultural Fields. *Soil Science*, 171(10): 784-799.
- 2004 Patrick Pease and Glen Gentry. “Why Not in My Back Yard: Field-Based Physical Geography Research in the Southeast”, *Southeastern Geographer*, 44: 15-26.
- Scott Lecce, Patrick Pease, Paul Gares, and Catherine Rigsby. “Floodplain Sedimentation During an Extreme Flood: The 1999 Flood on the Tar River, Eastern North Carolina”. *Physical Geography*, 25 (4): 334-346.

- 2003 Patrick Pease, Paul Gares, and Scott Lecce. "Eolian Dust Erosion From an Agricultural Field on the North Carolina Coastal Plain", *Physical Geography*, 23 (5): 381-400.
- Patrick Pease and Vatche Tchakerian. "Geochemistry of Sediments from Quaternary Sand Ramps in the Southeastern Mojave Desert, California", *Quaternary International*, 104: 19-29.
- 2002 Patrick Pease, Scott Lecce, Paul Gares, & Mark Lange. "Suggestions for Low-Cost Equipment for Physical Geography I: Laboratory Equipment", *Journal of Geography*, 101(4): 167-174.
- Patrick Pease, Scott Lecce, Paul Gares, & Mark Lange. "Suggestions for Low-Cost Equipment for Physical Geography II: Field Equipment", *Journal of Geography*, 101(5): 199-206.
- Patrick Pease and Vatche Tchakerian. "Composition and Sources of Sand in the Wahiba Sand Sea, Sultanate of Oman", *Annals of the Association of American Geographers*, 92(3): 416-434.
- 2000 Mark Lange, Scott Lecce, & Patrick Pease. "Sediment Storage and Drainage Ditch Excavation on the North Carolina Coastal Plain: A Case Study in Pitt County", *The North Carolina Geographer*, 8: 55-63.
- 1999 Patrick Pease, Gregory Bierly, Neil Tindale, & Vatche Tchakerian. "Mineralogical Characterization and Transport Pathways of Dune Sand using Landsat TM Data, Wahiba Sand Sea, Sultanate of Oman", *Geomorphology*, 29: 235-249.
- Lawrence De Chant, Patrick Pease, & Vatche Tchakerian, "Modelling Alluvial Fan Morphology", *Earth Surface Processes and Landforms*, 24: 641-652.
- Neil Tindale & Patrick Pease. "Aerosols over the Arabian Sea: Atmospheric Transport Pathways and Concentrations of Dust and Sea Salt", *Deep Sea Research*, 46: 1577-1596.
- 1998 Patrick Pease, Vatche Tchakerian, & Neil Tindale, "Aerosols Over the Arabian Sea: Geochemistry and Source Areas for Aeolian Desert Dust", *Journal of Arid Environments*, 39: 477-496.
- 1995 Patrick Pease & Basil Gomez, "Landscape Development as Indicated by Basin Morphology and the Magnetic Polarity of Cave Sediments, Crawford Upland, South-Central Indiana", *American Journal of Science*, 297: 842-858.
- 1994 Patrick Pease, Basil Gomez, & Victor Schmidt, "Magnetostatigraphy of Cave Sediments, Wyandotte Ridge, Crawford County, Indiana: Towards a Regional Correlation", *Geomorphology*, 11:75-81.
- 1992 Basil Gomez and Patrick Pease, "Early Holocene Cypriot Coastal Palaeogeography" *Report of the Department of Antiquities, Cyprus*, 1-8.

PUBLICATIONS (non-refereed):

- 2001 Scott Lecce, Patrick Pease, Paul Gares, and Catherine Rigsby. "Sedimentation in the Tar River floodplain associated with Hurricane Floyd". In Hurricane Floyd and its Aftermath. Coastal Carolina Press.
- 2000 Patrick Pease. "Physical Geography Field Guide of the Huron Peak area, Chaffee County, Colorado", East Carolina University Press, 51pgs.

GRANTS:

- 2012 *REU Site: The Interdisciplinary Research Experience in Hyperspectral Imaging (IDRESHI)*," Collaborator, NSF, \$345,000
- 2011 *Feasibility Study of Using Fused Glass to Improve Calibration Standards for Quantitative Laser-Induced Breakdown Spectroscopy of Geologic Materials*, UNI-OSP seed grant, \$2,310
- 2010 *Acquisition of a Hyperspectral Imaging System (HIS) for Multidisciplinary Research*. National Science Foundation (Co-Pi), \$168,000
- 2009 *Fire Information For Research Management System*. NASA subcontract (Co-Pi), \$130,000. (awarded but funds were withdrawn due to budget reductions).
- Acquisition of a Laser-Induced Breakdown Spectrometer system*. \$110,000. ARRA Competitive Funds.
- Acquisition of a Spectroradiometer*. \$46,000. CSBS Infrastructure Development Grant
- 2006 *The influence of topography on wind flow characteristics and sediment erosion in coastal dune systems*. Research Activities Grant, \$10,000.
- 2005 *The Impact of Wind-Blown Dust From Agricultural Fields on Local and Regional Air Quality*. College CRA Award.
- 2003 *Top Soil and Soil Nutrient Loss by Wind Erosion on Agricultural Fields in Eastern North Carolina*. Research Activity Grant, \$5,903.
- 2000 *The Aftermath of Hurricane Floyd: Assessment of the Geomorphic Effectiveness of the 1999 Flood on the Tar River, North Carolina*. National Science Foundation, \$30,394.00 (Co-PI)

GRANTS NOT FUNDED:

- Eolian influx monitoring using remote sensing in the Greater Yellowstone Geocosystem (GYG)*, 2010-2014 NASA (PI) \$750,000
- Acquisition of a Mobile LiDAR Scanner*, 2006, NSF-MRI \$222,500
- Monitoring Suspended Sediment in Coastal Plain Urban and Agricultural Watersheds*, 2003-2004, Water Resources Research Institute, \$40,000

Monitoring sediment and its transportation/deposition in the Tar-Pamlico River, North Carolina by using remotely sensed data coupled with ground observation, 2002-2004 North Carolina Sea Grant (co-PI) \$50,000

CONFERENCE PRESENTATIONS:

- 2013 *Laser-Induced Breakdown Spectroscopy (LIBS) as an Emerging Analytical Tool for Physical Geographers*, Association of American Geographers Annual Meeting, Los Angeles
- 2011 *Professional portfolios using Google Sites: Program assessment and student buy-in*, The Learning Portfolio: A Tool for Student Engagement and Inquiry, Univ. of Northern Iowa.
- 2010 *An examination of lab-based hyperspectral data for rapid, non-destructive analysis of lake cores*, Association of American Geographers Annual Meeting, Seattle, WA.
- 2009 *Influence of shallow water waves on wind profiles and onshore flow*, Association of American Geographers West Lakes Meeting.
- 2007 *Air flow transformations associated with the onshore movement of wind: a field experiment at Jockey's Ridge State Park, North Carolina, USA* Association of American Geographers Annual Meeting, San Francisco, CA.
- 2006 *The influence of topography and approach angles on local deflections of the wind field in a coastal blowout, Jockey's Ridge State Park, North Carolina, USA* Association of American Geographers Annual Meeting, Chicago, IL.
- Influence of topography on wind flow and sediment transport over a blowout at Jockey's Ridge State Park, North Carolina* Association of American Geographers Annual Meeting, Chicago, IL.
- Air flow and sediment transport dynamics in a coastal blowout, Jockey's Ridge State Park, North Carolina, USA* Annual meeting of the West Lakes Division of the AAG, Lincoln, Nebraska.
- 2005 *A Poster is Worth 1,000 Words: facilitating student development and public awareness by mapping current events* Association of American Geographers Annual Meeting, Denver, CO.
- Seasonal Variations in Sediment Flux Through Agricultural Drainage Ditches on the Coastal Plain of North Carolina* Association of American Geographers Annual Meeting, Denver, CO.
- 2004 *Aeolian Dust-Associated Nutrient Flux from an Agricultural Field on the North Carolina Coastal Plain* Association of American Geographers Annual Meeting, Philadelphia, PA.
- 2003 *Nitrogen and Phosphorus Flux Associated with Aeolian Dust from an Agricultural Field on the North Carolina Coastal Plain* Annual meeting of the Southeast Division of the Association of American Geographers, Charlotte, NC.

- 2002 *Aeolian Dust Erosion from an Agricultural Field on the North Carolina Coastal Plain*, Annual meeting of the Southeast Division of the Association of American Geographers, Richmond, VA.
- The Effects of Basin Morphology on Sediment Dispersal Patterns in High Alpine Lakes*. Annual meeting of the Southeast Division of the Association of American Geographers, Richmond, VA.
- Suspended Sediment Transport in a Small, Coastal Plain Watershed*. Annual meeting of the Southeast Division of the Association of American Geographers, Richmond, VA.
- 2001 *Concentrations and Heavy Metal Contamination of Overbank Deposits on the Floodplain of the Tar River, NC, Following Hurricane Floyd*, Annual meeting of the Southeast Division of the Association of American Geographers, Lexington, KY.
- Sedimentation on the Floodplain of the Tar River Following Hurricane Floyd*, East Carolina University Coastal Hazards Conference: Of People, Place and Progress: Extended Recovery on the Coastal Plain, Greenville, NC.
- Sedimentation on the Tar River floodplain during the flood of 1999*, Association of American Geographers Annual Meeting, New York, New York.
- 2000 *Geochemical analyses of sediments from sand ramps in the Bristol Trough and Clark's Pass sand transport corridors, Mojave Desert*, UNESCO International Geological Correlation Program 413 program, Understanding Future Dryland Changes From Past Dynamics conference, Desert Studies Center, Zzyzx, California.
- Sedimentation in the Tar River floodplain associated with Hurricane Floyd*. In the Aftermath of Hurricane Floyd: Recovery in the Coastal Plain, Greenville, NC.
- Aerosol levels and chemistry at Macquaire Island*. NOAA-Climate Monitoring and Diagnostics Laboratory Annual Science Meeting, Boulder, CO.
- Spatial variability of aeolian erosion on agricultural fields of the North Carolina coastal plain*, Association of American Geographers Annual Meeting, Pittsburgh, PA.
- 1998-98 *Geochemical Analysis of Aeolian Sands*, Association of American Geographers Annual Conference, Honolulu, HI.
- 1998 *Aerosols over the Arabian Sea: Geochemistry and source areas for aeolian desert dust*, The Fourth International Conference on Aeolian Research, Oxford, UK.
- Concentrations and sources of aeolian desert dust over the Arabian Sea*, Association of American Geographers Annual Meeting, Boston MA.
- Sand, Sea, and Air: An Overview of a Geomorphologist's Participation in the U.S. Joint Global Ocean Flux Study*, Texas Geomorphology Symposium, Junction, TX.
- 1997 *Atmospheric Transport Pathways and Concentrations of Dust and Sea Salt Aerosols Over the Arabian Sea*, American Geophysical Union Annual Meeting, San Francisco, CA.

Geomorphology and Sediments of the Wahiba Sand Sea, Sultanate of Oman, Fourth International Geomorphology Conference, Bologna, Italy.

Wet versus dry? The Role of wet and dry deposition in Supplying Iron to the Open Ocean Euphotic Zone, IAMAS / IAPSO Joint Assemblies Meeting, Melbourne, Australia.

An Overview of 1995 Aerosols Concentrations for the JGOFS Arabian Sea Study, Joint Global Ocean Flux Study - Arabian Sea Data Synthesis Meeting, Portsmouth, NH.

Geochemical Indicators of Sediment Provenance in the Wahiba Sand Sea, Sultanate of Oman, Association of American Geographers Annual Conference, Fort Worth TX.

Mineralogical Identification of Dune Sand using Landsat TM Imagery, Wahiba Sand Sea, Sultanate of Oman, Association of American Geographers Annual Conference, Fort Worth TX.

1996 *Desert Aeolian Dust Transport into the Arabian Sea*, Association of American Geographers Annual Conference, Charlotte NC.

1992 *Magnetostratigraphy of Cave Sediments, Wyandotte Ridge, Crawford County, Indiana*, Geological Society of America Annual Meeting, Cincinnati, OH.

Limitations on Regional Correlation of Cave Levels, Indiana and Kentucky, National Speleological Society Annual Meeting, Salem, IN.

PROFESSIONAL ACTIVITIES:

Editorial Activities

Editor, *The North Carolina Geographer*, 2000-2005
Associate Editor, *The North Carolina Geographer*, 1999

Professional Associations

Leopold Center for Sustainable Agriculture Board
Associate Director, GeoTREE
Geographic Alliance of Iowa, Steering committee
Geomorphology Working Group
Association of American Geographers

AWARDS:

Recipient of the National Council of Geographic Education's **Distinguished Teaching Achievement Award**.

National Geographic Annual Map Award, 2002. *Afghanistan: An Overview*, Executive Editor.