

CYNTHIA M. LIUTKUS

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Education

Ph.D., Geological Sciences, Rutgers University, 2005.

M.Sc., with a certificate in Quaternary Studies, Geological Sciences, Rutgers University, 2000.

B.A. *cum laude*, Geology and Philosophy (double major), Bucknell University, 1998.

Academic Positions

Research Associate, Virginia Museum of Natural History, 2010–Present.

Full Member of the Graduate Faculty, Appalachian State University, 2008–Present.

Associate Member, Don Sundquist Center of Excellence in Paleontology, ETSU, 2007–Present.

Adjunct Professor, East Tennessee State University, Johnson City, TN, 2007–Present.

Assistant Professor, Appalachian State University, Boone, NC, 2005–Present.

Visiting Assistant Professor, Bucknell University, Lewisburg, PA, 2004–2005.

Teaching Experience

Assistant Professor, Appalachian State University, Geology Department.

GLY1101 Introduction to Physical Geology

GLY1102 Historical Geology Laboratory

GLY1103 Environmental Geology Laboratory

GLY2250 Evolution of the Earth

GLY3800 Sedimentology & Stratigraphy

Visiting Assistant Professor, Bucknell University, Geology Department.

GEOL103 Physical Geology

GEOL106 Environmental Geology

GEOL150 Engineering Geology

Funding

PI, National Geographic Society, Research and Exploration Fund, 2010.

Appalachian State University Board of Trustees International Travel Grant, 2010.

Co-PI, NSF Major Research Instrumentation #09-0145 (with S.K. Carmichael), 2009.

Senior Scientist, NSF Tectonics #0838294 (to K.M. Scharer), 2008.

Appalachian State University Research Council Grant, 2005, 2006, 2009.

Appalachian State University Textbook Grant, 2005.

IAS Postgraduate Grant, 2001, 2003.

Sigma Xi grant-in-aid-of-research, 2001.

Geological Society of America grant-in-aid-of-research, 1999, 2001.

Invited Talks

On the Trail of Human Origins: New fossil footprints in northern Tanzania, Rutgers University, NJ, January 2010.

Petrographic and Geochemical Evidence for a Non-Pedogenic Origin of Calcitic Plant Molds, Southern Methodist University, TX, March 2009.

The Gray Fossil Site, TN: Sedimentologic investigations into the formation and fill history of a Tertiary sinkhole, Virginia Polytechnic Institute, VA, April 2008.

Across an Ocean, Across the Millennia: A geochemical study of modern deposits in Nevada helps to reconstruct Pleistocene hydrology in East Africa, East Tennessee State University, TN, November 2006.

Paleolandscape Reconstruction at Olduvai Gorge, Sigma Xi Monthly Meeting- Appalachian Chapter, Boone, NC, September 2005.

The Present is the Key to the Past: Using modern processes to interpret paleoclimate signals, Dickinson University, PA, February 2005.

Paleoclimate Reconstruction of the Pleistocene Olduvai Basin: Lakes and wetlands 'overflow' with possibilities, Appalachian State University, NC, January 2005.

Reconstructing Lake and Lake-margin Environments with Terrestrial Stable Isotopes: Implications for hominid-bearing sites, Bucknell University, PA, May 2004.

Research

Interests

Stable isotope signatures of modern and ancient lacustrine and palustrine carbonates.
Terrestrial isotopic proxies and their effectiveness for reconstructing Cenozoic paleoclimate.
Plio-Pleistocene African climate reconstruction and its implications for hominid evolution.
Aquatic geochemistry of wetland systems.

Experience

Independent field research, Tanzania, Summer 2009.
Independent field research, North Carolina and Virginia rift basins, Summer 2005 – present.
Independent field research, Pilot Valley, Nevada, Summers 2002 – present.
Independent field research, Green Lake, New York, Summers 2001 – 2003.
Independent field research, Olduvai Gorge, Tanzania, Summer 1999.

Professional Development

Moodle Workshop, Appalachian State University, August 2008.
Proposal and Grant Writing Workshop, Appalachian State University, September 2005.
Stable Isotope short course, University of Utah, June 2002.
Field Methods short course, Nova Scotia, Canada, July 2001.

Academic Service

National

Critical Reviewer: Journal of Human Evolution, PALAIOS, Quaternary Science Reviews
Geological Society of America Campus Representative, 2005–Present.
Schlemon Mentor Program Coordinator, Northeastern GSA Meeting, 2000.

Appalachian State University

Department Personnel Committee, 2008–Present.
Grade Appeals Committee, Summer 2008.
Oenology, Viticulture, and Natural Products Program, Curriculum Committee, Fall 2007.
Appalachian Retired Faculty Seminar, contributing speaker, Summer 2007.
Strategic Planning Commission, Appalachian State University, Spring 2007.
Chair- Recruiting, Scholarship, & Retention Committee, Geology Department, 2006–Present.
Geology Club Advisor, Geology Department, 2006–Present.
Academic Advisor, Geology Department, 2006–Present.
Chair- Newsletter Committee, Geology Department, 2006–2007.
Jobs Coordinator / Alumni Committee, Geology Department, 2006–Present.
University Teaching Assistant (UTA) Committee, Geology Department, 2005–Present.
Curriculum Committee, Geology Department, 2005–Present.

Community

Board of Directors member, Watauga Humane Society, June 2009 – December 2009.
Bylaws Revision Committee, Watauga Humane Society, January 2009 – December 2009.
Nominating Committee, Watauga Humane Society, since January 2009.
Optimists International, Spring 2008– Spring 2009.
“Katrina and the Big Easy- What happened and why?” McKinney Teaching Museum outreach program, Appalachian State University, contributing speaker, 2005.

Laboratory Skills

Stable isotope ratio mass spectrometry (SIRMS), X-ray diffraction (XRD),
cathodoluminescence microscopy (CL), SEM photomicrography, energy-dispersive X-ray
analysis (EDX), grain size analysis, optical microscopy and photomicrography.

Professional Society Memberships

Geological Society of America (GSA), and Limnology Division
Society for Sedimentary Geology (SEPM)
International Association of Sedimentologists (IAS)

Publications

Peer reviewed

Liutkus, C.M., Beard, J.S., Fraser, N.C., and Ragland, P.C., *in review*, Use of fine scale stratigraphy and chemostratigraphy to evaluate conditions of deposition and preservation of a Triassic Lagerstätte, south central Virginia: Journal of Paleolimnology.

Liutkus, C.M., 2009, Using petrography and geochemistry to determine the origin and formation mechanism of calcitic plant molds; rhizolith or tufa?: Journal of Sedimentary Research, v. 79, p. 906-917.

Nandi, A., **Liutkus**, C., and Whitelaw, M., 2009, Geotechnical characterization of Sevier and Rome shale, eastern Tennessee: 2009 Rock Mechanics Symposium Special Volume, v. TBD.

Liutkus, C.M., and Wright, J.D., 2008, The influence of hydrology and climate on the isotope geochemistry of playa carbonates: a study from Pilot Valley, Nevada, USA: *Sedimentology*, v. 55, p. 965-978.

Liutkus, C.M., Wright, J.D., Ashley, G.M., and Sikes, N., 2005, Paleoenvironmental interpretation of lake-margin deposits using $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ results from Pleistocene carbonate rhizoliths; Olduvai Gorge, Tanzania: *Geology*, v. 33, p. 377-380.

Liutkus, C.M., and Ashley, G.M., 2003, Facies model of a semiarid freshwater wetland, Olduvai Gorge, Tanzania: *Journal of Sedimentary Research*, v. 73, p. 691-705.

Ashley, G.M., and **Liutkus**, C.M., 2002, Tracks, trails, and trampling by large vertebrates in a rift valley paleo-wetland, lowermost Bed II, Olduvai Gorge, Tanzania: *Ichnos*, v. 9, p. 23-32.

Non-peer reviewed

Liutkus, C.M., 2005, Paleoclimate reconstruction using stable isotopes of freshwater phreatic carbonates: Ph.D. Dissertation, Department of Geological Sciences, Rutgers University, 212 pp.

Liutkus, C.M., 2000, Sedimentology, stratigraphy, and stable isotopes of the lowermost Bed II freshwater wetlands, Olduvai Gorge, Tanzania: Master's Thesis, Department of Geological Sciences, Rutgers University, 159 pp.

Abstracts and Presentations at National and International Meetings

Norman, J.R., **Liutkus**, C.M., Wright, J.D., Scharer, K., Weldon, R., and Fumal, T., 2010, Stable isotope ecology of Holocene carbonates from the Frazier Mountain paleoseismic site, southern California: Geological Society of America, Abstracts with Program, vol. TBD.

McGinnis, K., and **Liutkus**, C.M., 2009, Fingerprinting a footprint-bearing volcanic ash in northern Tanzania: Geological Society of America, Abstracts with Program, v. 41, no. 7.

Brett, J., Mollé, G., **Liutkus**, C., Harcourt-Smith, W., Pobiner, B., Olle Moita, G., and Swisher III, C., 2009, In the footprints of our ancestors: A new hominin (*Homo sapiens*) trackway at Ngare Sero, Tanzania. East African Association of Paleoanthropology and Paleontology Conference, v. TBD.

Liutkus, C.M., and Whitelaw, M.J., 2008, Sedimentologic and stratigraphic investigations into the origin and fill history of a Tertiary sinkhole lake; Gray Fossil Site, TN. Geological Society of America, Abstracts with Program, 151-15.

McGinnis, K.J., Pruitt, A.H., and **Liutkus**, C.M., 2008, Independent sedimentological studies on fluvial and lacustrine sediments from the Gray Fossil Site sinkhole, northeastern TN. Geological Society of America, Abstracts with Program, 152-9.

Liutkus, C.M., 2007, New terminology for calcite stem casts formed in standing water: A case study from the semiarid western USA. Geological Society of America, Abstracts with Program, v. 39, no. 6, p. 345.

Quick, J.B., and **Liutkus**, C.M., 2007, Do playa sediments track paleoenvironment?: Sedimentological analyses of Quaternary lake cores from Pilot Valley, NV. Southeast Geological Society of America, Abstracts with Program, v. 39, no. 2, p. 84.

Liutkus, C.M., Raines, S.D., and Quick, J.B., 2007, Sedimentological analysis of Quaternary fossil-bearing lakeshore sediments from Pilot Valley, NV: Implications for climate change. Southeast Geological Society of America, Abstracts with Program, v. 39, no. 2, p. 83.

Liutkus, C.M., and Wright, J.D., 2006, Phreatically-formed rhizoliths as a tool for paleolandscape reconstruction: Southeast Geological Society of America, Abstracts with Program, v. 38, no. 3, p. 26.

Liutkus, C.M., 2006, Modern 'rhizolith' formation on a closed-basin playa, Pilot Valley, NV: Southeast Geological Society of America, Abstracts with Program, v. 38, no. 3, p. 72.

Liutkus, C.M., and Wright, J.D., 2004, Rhizolith stable isotope patterns from Pilot Valley Playa, Utah: Geological Society of America, Abstracts with Program, v. 36, no. 5, p. 358.

Liutkus, C.M., and Wright, J.D., 2003, The rhizolith recorder: Reconstructing climate with stable isotope signatures of modern and ancient lacustrine carbonates: International Limnogeology Congress, Third Meeting, Abstract Volume, p. 166-167.

Liutkus, C.M., and Wright, J.D., 2002, Seasonal variation in $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ values of carbonate reedcasts from Fayetteville Green Lake, NY: Geological Society of America, Abstracts with Program, v. 34, no. 6, p. 334.

Liutkus, C.M., Ashley, G.M., and Wright, J.D., 2000, Short-term climate changes and Milankovitch cyclicity at Olduvai Gorge, Tanzania: Evidence from sedimentology and stable isotopes. Geological Society of America, Abstracts with Program, v. 32, no. 7, p. 21.

Deocampo, D.M., Hay, R.L., Ashley, G.M., Kyser, T.K., and **Liutkus**, C.M., 2000, Lacustrine clay diagenesis in Northern Tanzania, and paleoenvironmental applications at Olduvai Gorge. Geological Society of America, Abstracts with Program, v. 32, no. 7, p. 366.

Ashley, G.M., Deocampo, D.M., and **Liutkus**, C.M., 2000, Track records of large mammals in lake-margin wetlands, LMBed II, Olduvai Gorge, Tanzania. International Association of Sedimentologists, Regional Meeting Abstracts, Dublin, Ireland.

Liutkus, C.M., and Ashley, G.M., 2000, Facies model of a Pleistocene groundwater-fed wetlands in a volcanoclastic setting; Olduvai Gorge, Tanzania. Geological Society of America, Abstracts with Program, v. 32, no. 1, p. 31.

* underlined names are undergraduate students who worked on independent research projects.

Other Publications

Liutkus, C.M., 2008, *Superposition: A lab manual for Sedimentology and Stratigraphy*, GLY3800, (3rd edition), with contributions from G.M. Ashley and C.S. Feibel.