

L. SCOTT EATON - CURRICULUM VITAE

ADDRESS

Department of Geology and Environmental Science
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POSITION

Associate Professor of Geology, James Madison University

EDUCATION

Ph.D., Environmental Sciences

Department of Environmental Sciences, University of Virginia; 1999.
Dissertation: *Debris flows and Landscape evolution in the Upper Rapidan Basin, BlueRidge Mountains, Central Virginia*
Advisor: Dr. Alan D. Howard.

M.S., Geology

Department of Geology, Southern Illinois University, 1991. Thesis: *Fluvial-Geomorphic Analysis of Wolf Creek Basin, Alexander County, Illinois.*
Advisor: Dr. Margaret E. Berry.

B.S., Geology

James Madison University, 1988. Honors Thesis: *Depositional History of the Lowest North River Terrace at Bridgewater Air Park, Virginia..*
Advisor: Dr. W. Cullen Sherwood.

TEACHING EXPERIENCE

Associate Professor of Geology: 2004 – present; James Madison University.

Teaching courses in Physical Geology, Geomorphology, Hydrogeology, Stream Ecology, Field Course in Ireland, Surface Processes, Natural Hazards, Soils and Land Use, Engineering Geology.

Assistant Professor of Geology: 2000–2003 (tenure track); James Madison University.

Taught Physical Geology, Geomorphology, Hydrogeology, Field Course in New Mexico, and General Chemistry and Physics.

Assistant Professor of Geology: 1998 - 2000 (revolving term contract); James Madison University.

Taught Physical Geology, Geomorphology, Hydrogeology, and General Chemistry and Physics.

TEACHING EXPERIENCE (cont.)

Visiting Assistant Professor of Geology: 1997 - 1998; James Madison University.
Taught Physical Geology and Hydrogeology.

Instructor of Geology (part time): 1995 - 1997; James Madison University.
Taught Physical Geology and Hydrogeology.

Teaching Assistant: 1994 - 1997; University of Virginia.
Taught labs in Physical Geology and Geomorphology.

Instructor of Geology: 1991 - 1994; James Madison University.
Taught Physical Geology and Hydrogeology.

Field Camp Instructor: summer, 1991; Southern Illinois University
Taught summer Geology Field Camp in the Northern Rockies,
Wyoming and Montana.

Teaching Assistant: 1990 - 1991; Southern Illinois University.
Taught labs in Physical Geology and Geomorphology.

Teaching Assistant: 1985 - 1988; James Madison University.
Assisted professors in lab instruction, including Physical Geology, Soils
and Land Use, and Engineering Geology.

PROFESSIONAL WORK EXPERIENCE

Field Geologist (faculty appointment), U.S. Geological Survey, Reston, Virginia,
1996 - present.
Principal investigator in mapping debris flow and flood deposits in the Blue
Ridge Mountains of Central Virginia, including documentation of the
stratigraphy and sedimentology of prehistoric surficial deposits.

Geological Consultant, 1996 – present.
Responsible for locating high yielding water wells using fracture trace
analysis in conjunction with other geological methods of investigation.

Hydrogeologist, U.S. Geological Survey, Indianapolis, Indiana, Summer, 1992.
Responsible for acquisition and synthesis of field data for the USGS-Indiana
Bridge Scour Project.

PROFESSIONAL WORK EXPERIENCE (cont.)

Exploration Geologist, Amoco Production Company, Houston, Texas, Summer, 1990.

Research focused on improving success rates of finding gas deposits in the South Callaghan Ranch Field, south Texas using well log and seismic data.

Transportation Research Assistant, Virginia Transportation Research Council, 1989.

Responsible for collecting and testing Virginian aggregate samples for polishing rates of bituminous pavements that result from high volume highway traffic.

SCHOLARLY ACTIVITY (publications, abstracts, presentations, and funding)

Publications

(JMU student authors are shown in **bold**)

(* indicates peer-reviewed)

*Eaton, L.S., Kochel, R.C., Hubbard, D.A., Simoni de Cannon, F.V., and Mose, D.G., (accepted), Geologic Hazards of Virginia, *in* Bailey, C.M. and Eaton, L.S. (eds), *The Geology of Virginia*, Virginia Geology Division of Mineral Resources, Charlottesville.

*Wieczorek, G.F., Eaton, L.S., Morgan, B.A., Wooten, R.M., and Morrissey, M., (in press), An examination of selected historical rainfall-induced debris flow events within the central and southern Appalachian Mountains of the Eastern United States, US Geological Survey.

*Kochel, R.C.; Nickelsen, R.P., and Eaton, L.S., (in press) Catastrophic Middle Pleistocene Jökulhlaups in the Upper Susquehanna River: Distinctive Landforms from Breakout Floods in the Central Appalachians, *Geomorphology*.

*May, C.L., Eaton, L.S., and Whitmeyer, S., (in press), Integrating student-led research in environmental geology into traditional field courses: a case study from James Madison University's field course in Ireland, *Geological Society of America Special Paper Series*.

Publications (continued)

- *Litwin, R.J., Morgan, B.A., and Eaton, L.S., (in review), Rapid Appalachian Forest Shift from 45,000 yr B.P. to Present, *Quaternary Science Review*.
- ***Sas, R.J., Jr.**, and Eaton, L. S., 2008, Quartzite terrains, geologic controls, and basin denudation by debris flows: their role in long-term landscape evolution in the central Appalachians, *Journal of Landslides*, v. 5, no. 1, p. 97-106.
- ***Sas, R.J., Jr.**, Sklar, L.S., Eaton, L.S., and Davis, J., 2008, A Method for Developing Regional Road-Fill Failure Hazard Assessments Using GIS and Virtual Fieldwork, *Environmental and Engineering Geosciences*; v. 14:221-229.
- *Wieczorek, G.F., Eaton, L.S., Yanowsky, T.M., and **Turner, E.J.**, 2005, Landslide activity along Meadow Run, Shenandoah Valley, Virginia, *Journal of Landslides*, v. 3, pp. 95-106.
- Eaton, L.S., 2005, *Assessment of the Geologic and Geomorphologic Resources of Shenandoah National Park, Virginia*, Technical Report, National Park Service.
- Eaton, L.S., and Bailey, C.M., 2004, Surficial and bedrock geology of western Madison County, Virginia, *Virginia Geological Field Conference Guide Book*.
- *Litwin, R.J., Morgan, B.A., Eaton, L.S., and Wieczorek, G.F., 2004, Assessment of Late Pleistocene to recent climate-induced vegetation changes in and near the Shenandoah National Park (Blue Ridge Province, VA), *USGS Open File Report 2004-1351*.
- *Eaton, L.S., Morgan, B.A., Kochel, R.C., and Howard, A.D., 2003, Role of debris flows in long-term landscape denudation in the central Appalachians of Virginia. *Geology*, v. 31, p. 339-342.
- *Eaton, L.S., Morgan, B.A. Kochel, R.C., and Howard, A.D., 2003, Quaternary deposits and landscape evolution of the central Blue Ridge of Virginia, *Geomorphology*, v. 56, p. 139-154.
- *Morgan, Benjamin A; Eaton, L Scott; Wieczorek, Gerald F, 2003, Pleistocene and Holocene colluvial fans and terraces in the Blue Ridge region of Shenandoah National Park, Virginia, *U. S. Geological Survey, Report: OF 03-0410*, 25 pp., 1 Sheet.
- *Wieczorek, Gerald F; Larsen, Matthew C; Eaton, L Scott; Morgan, Benjamin A; Blair, J Luke, 2002, Debris-flow and flooding deposits in coastal Venezuela associated with the storm of December 14-16, 1999, Geologic Investigations Series - *U. S. Geological Survey, Report: I-2772*, 2 sheets.

Publications (continued)

- *Eaton, L.S., Morgan, B.A., and Blair, J.L., 2001, Surficial geology of the Fletcher, Madison, Stanardsville, and Swift Run Gap, 7.5-minute quadrangles, Madison, Greene, Albemarle, Rockingham, and Page Counties, Virginia, *US Geol. Surv. OFR 01-92*. 1 table, 1 appendix, 4 plates, 1 CD..
- *Larsen, M.C., Wieczorek, G.F., Eaton, L.S., Torres-Sierra, H., Morgan, B.A. 2001, Natural Hazards on Alluvial Fans; The Venezuela Debris Flow and Flash Flood Disaster, *USGS Fact Sheet*.
- Larsen, Matthew C; Wieczorek, G F; Eaton, L S, 2001, The rainfall-triggered landslide and flash flood disaster in northern Venezuela, December 1999, Proceedings - Federal Interagency Sedimentation Conference, vol.7, Vol. 1, pp.IV9-IV16.
- *Larsen, Matthew C; Wieczorek, Gerald F; Eaton, L Scott; Morgan, Benjamin A; Torres-Sierra, Heriberto, 2001, Venezuelan debris flow and flash flood disaster of 1999 studied *Eos, Transactions*, American Geophysical Union, vol.82, no.47, pp.572-573.
- *Litwin, Ronald J; Morgan, Benjamin A; Eaton, L Scott; Wieczorek, Gerald F; Smoot, Joseph P, 2001, Proxy climate evidence from late Pleistocene deposits in the Blue Ridge of Virginia Open-File Report - *U. S. Geological Survey, Report: OF 01-0406*, pp.79.
- *Springer, G.S., **Dowdy, H.S.**, and Eaton, L.S., 2001, Sediment budgets for two mountainous basins affected by a catastrophic storm: Blue Ridge Mountains, Virginia: *Geomorphology*, v. 37, p. 135–148.
- *Wieczorek, G.F., Larsen, M.C., Eaton, L.S., Morgan, B.A. and Blair, J. L., 2001, Debris-flow and flooding hazards associated with the December 1999 storm in coastal Venezuela and strategies for mitigation: *U.S. Geological Survey Open File Report 01-144*, 40p., 3 tables, 2 appendices, 3 plates, 1 CD.
- *Larsen, M.C., Wieczorek, G. F., Eaton, L.S., and Torres-Sierra, H., 2000, The Venezuela landslide and flash flood disaster of December 1999, In: Mugnai, A., Guzzetti, R., and Roth, E. (Eds.), *Mediterranean Storms*, Proceedings of the 2nd Plinius Conference, October, 2000, Siena, Italy, p. 519-529.
- Eaton, L.S., Lin, M.A., and Lynn, C., 1998, Assessment of opportunities for enhanced cooperation in acquiring and disseminating weather data among selected Virginia government agencies; *Virginia Transportation Research Council, Report Number VTRC 98-R16*.

Abstracts

(JMU student authors are shown in **bold**)

Eaton, L.S., 2008, Long term rates of landscape denudation of the central Appalachians, and their significance on sedimentation in the Chesapeake Bay , US EPA Proceedings on Fine Grain Sedimentation within the Chesapeake Bay, Baltimore, MD.

Eaton, L.S., 2008, Effects of land use changes and channelization on the stability of streams: A case study from the Shawnee Hill country of southern Illinois, Geohazards in Transportation in the Appalachian Region, Charleston, WV, Aug. 5-7, 2008.

Eaton, L.S., May, C.L., Moore, K.R., Harris, M.J., and Whitmeyer, S.J., 2007, Integrating student-led research in environmental geology into traditional field courses: a case study from James Madison University's field course in Ireland, Geological Society of America Abstracts with Programs, Vol. 39, No. 6, p. 622.

Sas, R.J., Jr., and Eaton, L. S., 2007, An integrative approach to assessing potential road-fill failures and downslope hazards, Geological Society of America Abstracts with Programs, Vol. 39, No. 6, p. 363.

Harris, M.J., Whitmyer, S., Kelly, S., Whitmyer, S. J., Feely, M., and Eaton, L. S., 2006, Digital Mapping and 3D Visualization in a geology summer field course, Geological Society of America Abstracts with Programs.

Roberts, S. M., May, C. L., Eaton, L. S., and Hudy, M., 2006, Mixing Geomorphology and Ecology: Relationships between fish populations and stream bed permeability, Geological Society of America Abstracts with Programs.

Sas, R.J., Jr. and Eaton, L. S., 2006, Landslide Warning Action Plan: Prioritizing Areas of High Risk Along Blue Ridge Parkway Using VisiData, Eos, Transactions, American Geophysical Union.

Eaton, L.S., 2005, Rates of landscape denudation of the central Appalachians, International Consortium on Landslides, National Academy of Sciences, Washington, D.C.

Sas, R.J., Jr. and Eaton, L. S., 2005, Geologic controls of basin denudation from debris flows in Rockbridge County, Virginia, Geological Society of America Abstracts with Programs.

Eaton, L. Scott, 2004, The role of debris flows in long-term denudation and landscape evolution in the central Appalachians, Eos, Transactions, American Geophysical Union.

Abstracts (continued)

- Felker, Kristin C., Benedict, Meredith L.,** and Eaton, L. Scott, 2004, Sedimentology and geomorphology of Blackrock block stream, Shenandoah National Park, Virginia, Geological Society of America Abstracts with Programs, Vol. 36, No. 2, p. 73.
- Frangos, William, and Eaton, L. Scott, 2004, Case History: Merging the Tools of DC Resistivity and Fracture Trace Analysis for Locating High Yield Domestic Water Wells in Karst Terrain, Shenandoah Valley, Virginia, USA, (abstract), AGU Montreal Meeting, May, 2004.
- Litwin, R.J., Morgan, B.A., and Eaton, L.S., 2004, Proxy climate trends in the Blue Ridge of Virginia, 0-45 KA, and comparison to the Greenland ice core record, Geological Society of America Abstracts with Programs, Vol. 36, No. 2, p. 114.
- Peebles, Erin K.** and Eaton, L. Scott, 2004, The past, present, and future locations of the stream of Meadow Run, Blue Ridge Mountains, Virginia, Geological Society of America Abstracts with Programs, Vol. 36, No. 2, p. 114.
- Turner, Eric J.,** and Eaton, L. Scott, 2004, Reactivation of slope failures along Meadow Run, Shenandoah Valley, Virginia: Geological Society of America Abstracts with Programs, Vol. 36, No. 2, p. 120.
- Wieczorek, Gerald F., Eaton, L. Scott, and **Turner, Eric J.** 2004, Landslide activity along Meadow Run, Shenandoah Valley, Virginia, Geological Society of America, vol.36, no.2, pp.149.
- Eaton, L Scott; Yanosky, Thomas M; Wieczorek, Gerald F, 2003, Use of dendrochronology for determining the chronology of landslide activity along Meadow Run, Shenandoah Valley, Virginia, USA, Eos, Transactions, American Geophysical Union, vol.84, no.46.
- Kochel, R Craig; Nickelsen, Richard P; Eaton, L Scott, 2003, Elongated low-gradient debris fans; jokulhlaups resulting from tributary damming by pre-Wisconsinan glacial ice lobes moving up the Buffalo Creek valley in central Pennsylvania, Abstracts with Programs - Geological Society of America, vol.35, no.6, pp.335.
- Bierman, P.R., Pavich, M., Eaton, L.S., Finkel, R., and Larsen, J., 2002, The boulders of Madison County, Abstracts with Programs - Geological Society of America, 34(6), p.127; Geological Society of America, 2002 annual meeting, Denver, CO, Oct. 27-30, 2002.

Abstracts (continued)

- Eaton, L.S.; **Reynolds, S.H.**, 2002, Trends in vegetation recovery of the Kinsey Run debris fan, Madison County, Virginia, Abstracts with Programs - Geological Society of America, 34(2), p.8.
- Eaton, L.S.; Wieczorek, G.F.; Morgan, B.A.; **McNown, A.W.**; Smoot, J.P.; and Litwin, R.J., 2002, Periglacial slope processes and deposits in the Blue Ridge Mountains of central Virginia, Abstracts with Programs - Geological Society of America, 34(6), p.276.
- Neely, B., H.**; Eaton, L.S., 2002, Soil pedogenesis of debris fans, Graves Mill, VA Virginia Journal of Science, 52(2), p.111.
- Printz, C.M.**; Eaton, L.S., 2002, The karst development of the Union and Hurricane Ridge cave systems, Dickson Spring drainage basin, Monroe County, West Virginia, Virginia Journal of Science, vol.52, no.2, pp.111. Society of America, vol.34, no.2, pp.8.
- Eaton, L Scott, 2001, Denudation from catastrophic flooding in northern Venezuela, December, 1999, Virginia Journal of Science, vol.52, no.2, pp.113.
- Eaton, L Scott; Wieczorek, Gerald F; Morgan, Benjamin A, 2001, Weathering characteristics and ages of debris-flow deposits at Graves Mill, VA, Abstracts with Programs - Geological Society of America, vol.33, no.2, pp.59.
- Eaton, L S; Larsen, M C; Wieczorek, G F; Torres-Sierra, Heriberto, Landslides and catastrophic flooding in northern Venezuela, December, 1999, 2000, Abstracts with Programs - Geological Society of America, vol.32, no.7, pp.223.
- Wieczorek, G F; Larsen, M C; Eaton, L S; Garcia Martinez, R; Jimenez Diaz, V; Perez Hernandez, D; Rodriguez, J A; Urbani, F, 2000, Catastrophic landslides and flooding in coastal Venezuela, December 16, 1999, Annual Meeting - Association of Engineering Geologists, vol.43, no.4, pp.120, Jul 2000.
- Craddock, Robert A; Eaton, L Scott; Russo, Carolyn J; Torley, Roy F, 1997, A new method for determining the emplacement mechanism(s) of rocks on Mars, Abstracts of Papers Submitted to the Lunar and Planetary Science Conference, vol.28, Part 1, pp.263-264.
- Eaton, L Scott; Kochel, R Craig; Howard, Alan D; Sherwood, W Cullen, 1997, Debris flow and stratified slope wash deposits in the central Blue Ridge of Virginia, Abstracts with Programs - Geological Society of America, vol.29, no.6, pp.410.

Abstracts (continued)

Eaton, L Scott; McGeehin, John P, 1997, Frequency of debris flows and their role in long term landscape evolution in the central Blue Ridge, Virginia, Abstracts with Programs - Geological Society of America, vol.29, no.6, pp.410.

Kochel, R Craig; Eaton, L Scott; Daniels, Noah; Howard, Alan D, 1997, Impact of 1995 debris flows on geomorphic evolution of Blue Ridge debris fans, Madison County, Virginia, Abstracts with Programs - Geological Society of America, vol.29, no.6, pp.410.

Eaton, L.S., 1996, Prehistoric debris flows and landscape evolution in Madison County, Virginia; Virginia Association of Professional Soil Scientists Fall Meeting, Culpeper, VA, November 13, 1996.

Kochel, R Craig; Eaton, L Scott; Howard, Alan D, 1996, Catastrophic debris flows in the Northern and Central Appalachians; considerations of their role in the evolution of Piedmont geomorphology, Abstracts with Programs - Geological Society of America, vol.28, no.7, pp.299.

Saxton, H Thomas, III; Sherwood, W Cullen; Eaton, L Scott, 1995, Alluvial and colluvial cappings and related soils, on interfluves of the central Virginia Piedmont, Abstracts with Programs - Geological Society of America, vol.27, no.2, pp.85.

Eaton, L S; Sherwood, W C, 1989, Fluvial terrace development in the North River basin, Rockingham County, Virginia, Virginia Journal of Science, vol.40, no.2, pp.81.

Sherwood, W C; Mahone, David C; Eaton, L Scott, 1989, The effect of aggregate type and mix design on wet pavement skid resistance, Proceedings of the Annual Highway Geology Symposium, vol.50, pp.176-189.

Invited Presentations (Academia):

General Topic: *The role of debris flows in landscape evolution of the Blue Ridge Mountains, central Virginia.*

- US EPA Fine Sediment and the Chesapeake Bay Conference, 2008
- National Academy of Sciences, 2005
- Dept. of Geology, Humboldt State University, Sept. 2003
- Dept. of Geology, South Carolina University, Feb. 2002
- Dept. of Environmental Sciences, Univ. of Virginia, Jan. 2001
- Dept. of Geology, College of William and Mary, Nov. 1999

Invited Presentations (Academia) (cont.)

General Topic: *Effects of land use changes and channelization on the stability of streams:*

- Geohazards in Transportation in the Appalachian Region, Charleston, WV, Aug. 2008.

General Topic: *Landslides and catastrophic flooding in northern Venezuela, December, 1999.*

- Dept. of Geology, East Carolina University, Nov. 2001
- Dept. of Geology, South Carolina University, Feb. 2002

Presentations given to civic and professional groups:

- "Groundwater Resources of Virginia", Master Naturalist, Old Rag Chapter, October 2006
- "Groundwater resources of Virginia," Virginia Nursery Association Annual Meeting, Middletown, VA, April 2003.
- "Landslides in the Blue Ridge Mountains, Central and Western Virginia," Stewards of the upper Rapidan, Madison, VA July 2002.
- "Groundwater resources of Virginia," Winchester Rotary Club, March 15, 2001.
- "Groundwater resources of Virginia and West Virginia," Virginia and West Virginia State Horticulture Society Annual Meeting, Williamsburg, VA, January 24, 2001.
- "Landslides in the Blue Ridge Mountains, Central and Western Virginia," Harrisonburg Rotary Club, April 25, 1999.
- "Groundwater resources of Virginia," US Natural Resources Conservation Service-Sponsored *Drip Irrigation Conference*, Middletown, VA, December, 1999.

Funding

Virginia Division of Mineral Resources, *Surficial Geology of the Elkton West Quadrangle, Virginia*, (\$8000*), summer and fall, 2008.

*of which \$1000 for **student support**

College of Science and Mathematics, JMU, *A novel approach for measuring and predicting streambed mobility during natural and experimental floods in a large regulated river* (\$4000), summer, 2008.

US Geological Survey, *Landslide Warning Action Plan: Prioritizing areas of high risk along Blue Ridge Parkway*, (~\$10,000), 2006-2007. (Grant covers travel expenses, and supports one faculty and **two students**)

Canaan Valley Institute, *Geomorphology of Smith Creek, Rockbridge County Virginia* **Student support** (\$3000) summer, 2006.

Funding (continued)

US Geological Survey, *Geologic Controls of Basin Denudation from Debris Flows in Rockbridge County, VA.*

Student support (\$1500) for field research, 2004/2005 academic year

US Geological Survey, *Surficial Geology of Shenandoah National Park,*
Faculty research support (\$2,000), Fall, 2005

National Park Service, *Assessment of the Geologic and Geomorphologic Resources of Shenandoah National Park, Virginia,*

Faculty research support (\$10,000) summer/fall 2005

Virginia Division of Mineral Resources, *Surficial Geologic Investigation on the Grottoes and Vesuvius 7.5-minute Quadrangles*

Faculty support (\$2500), 2005/2006.

Student support (\$1000) 2006/2007

US Geological Survey

Salary as Research Scientist (~\$5,000/year) - 1997-present.

US Geological Survey

Funding for 39 radiocarbon dates (\$13,650) and 3 cosmogenic Beryllium dates (\$3000) (1997-2001)

US Fish and Wildlife Service

Grant (\$3000) for **student salary** (1999)

Stream Restoration Training

Grants to support tuition for Rosgen stream restoration course (2001)

\$1000 from Canaan Valley Institute

\$250 from JMU College of Science and Mathematics

\$250 from Stewards of the Upper Rapidan

US Geological Survey

Applied for and received \$5000 grants from the US Geological Survey to support field research of 5 JMU students for the 2003-2004 academic year

JMU College of Science and Mathematics

Applied for and received a college grant (\$2000) for development of a new Environmental Geology course.

Professional Affiliations

Member – Geological Society of America

Member – American Geophysical Union

Member – Virginia Association of Professional Soil Scientists